UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

December 6, 2021

REPLY TO THE ATTENTION OF:
SR-6J

MEMORANDUM

SUBJECT: Enforcement Action Memorandum – Request for Approval of Change in Scope at the Peoples Gas Crawford Station Former MGP Site, Chicago, Illinois (Site ID# B5HK)

FROM: Bill Murray, Remedial Project Manager
Remedial Response Branch 2 – Remedial Response Section 3

Lauren Bumba, Remedial Project Manager
Remedial Response Branch 1 – Remedial Response Section 1

THRU: Samuel Borries, Chief
Emergency Response Branch 2

TO: Douglas Ballotti, Director
Superfund and Emergency Management Division

I. PURPOSE

The purpose of this Amended Action Memorandum is to request and document your approval of a change in scope to the removal action at Parcels G and V where non-aqueous phase liquid (NAPL) contamination in soil exceeds Removal Management Levels (RMLs) and is identified for cleanup under an ongoing time-critical removal action (TCRA) at the Peoples Gas Crawford Station Former Manufactured Gas Plant (MGP) Site (Site) in Chicago, Illinois.

The original action memorandum, dated October 12, 2011, described the removal action necessary to mitigate the immediate threats to public health and the environment posed by the presence of uncontrolled hazardous wastes on Parcels A, B, and O at the Site, including the excavation of soils containing elevated levels of polynuclear aromatic hydrocarbons (PAHs), and documented approval of the proposed TCRA. On November 19, 2012, an amended action memorandum was issued to include Parcel L, and a second amendment dated September 30, 2014 to include Parcel I. On April 20, 2016, a third amended action memorandum was approved to include Parcel K.

Since the previous action memorandum contemplated that the scope of the removal action could expand beyond the parcels previously anticipated, no new action memoranda were prepared for

subsequent removal actions at Parcels D and M. However, due to the change in scope to include in situ stabilization/solidification (ISS) in addition to excavation at Parcels G and V, this Amended Action Memorandum has been prepared.

The response actions proposed herein will mitigate risks posed by the presence and threatened release of hazardous substances at Parcels G and V by requiring the removal and off-site disposal of shallow unsaturated soil to a depth of approximately six feet below ground surface (bgs) and ISS from approximately six to 21 feet bgs. This soil containing high levels of PAHs at concentrations exceeding U.S. Environmental Protection Agency RMLs and Illinois Environmental Protection Agency (Illinois EPA) Tiered Approach to Corrective Action Objectives (TACO) requires that these actions be classified as a TCRA. Additional activities will include pre-confirmation sampling around the perimeter of the treatability area to a depth of 25 feet bgs to confirm the extent of the contamination, implementation of an air monitoring and fugitive dust emissions plan, and construction testing in accordance with the approved quality assurance plan.

This removal action will be completed by the potentially responsible party (PRP), The Peoples Gas Light and Coke Company (PGL), pursuant to a September 12, 2011 Administrative Settlement Agreement and Order on Consent (2011 ASAOC), as amended. The Crawford Station Former MGP Site is not on the National Priorities List (NPL), and there are no nationally significant or precedent setting issues associated with this Site. The removal action is expected to take approximately 12 months to complete.

II. SITE CONDITIONS AND BACKGROUND

Name:	Peoples Gas Crawford Station Former MGP Site, Parcels G and V
Superfund Site ID:	B5HK
CERCLIS ID:	ILN000510192
Site Location:	4358 West 35th Place, Chicago, Cook County, Illinois 60632
Lat/Long:	41.8311298°, -87.7343237°
Category:	Time-Critical Removal Action

A. Site Description

1. Removal site evaluation

Analytical data from soil samples collected in soil borings and test pits as part of the remedial investigation (RI) and pre-design investigation (PDI) were used to identify and delineate removal areas. Data for Parcels G and V is included in Tables 1 and 2. Consistent with the prior TCRAs at other Site parcels, proposed removal action limits were primarily defined based on descriptions of visual NAPL identified as MGP source material. Soil analytical data were used to correlate visual indications of NAPL. The proposed removal action areas were refined to include areas where total petroleum hydrocarbon (TPH) concentrations exceeded the default value of 2,000 milligrams per kilogram (mg/kg) in accordance with TACO regulations for determination of soil attenuation capacity (Illinois TACO: 35 IAC 742, Section 742.215).

Based on the initial site investigation data, preliminary areas to be addressed by the TCRA are presented in Figure 4 and include excavations/ISS treatments to seven feet bgs, 12 feet bgs, 16 feet bgs, and 21 feet bgs. The treatment depths were selected in such a way that all treatment areas will be at least 0.5-foot deeper than the deepest impacts. The majority of the treatment area is on the eastern and southern portions of Parcels G and V, as confirmed during the PDI. Another isolated 7-foot treatment area was determined based on data collected during the PDI on the western portion of Parcel V. In total, the volume to be addressed by the TCRA is approximately 108,000 cubic yards.

2. Physical location

Please refer to the original Action Memorandum approved on October 12, 2011 (Attachment 1).

3. Site characteristics

Parcels G and V comprise approximately seven acres on the northern portion of the Site (see Figure 1). The parcels are vacant, generally flat, covered with stone, and accessible from West 35th Place. Historically, Parcels G and V had no active MGP operations. However, MGP-impacted soils appear to have been placed there as surface fill throughout the historical operations of the Crawford MGP. Following the decommissioning of the Crawford MGP, Parcels G and V were leased by others and used for parking and maintenance of truck trailers.

A slab-on-grade warehouse building that included a maintenance garage was razed in December 2020. All public utilities servicing the building including water, electric, gas, communication, and sanitary sewer were removed prior to demolition. Approximately 480 linear feet of sub-grade sheet pile is located along the eastern boundary of Parcel G, and approximately 300 linear feet of sub-grade sheet pile is located along the southern boundaries of Parcels G and V where they abut West 35th Place. The sheet pile walls were installed as part of previous removal actions on Parcel K in 2016 and 2017 (to the east) and West 35th Place in 2020 (to the south).

Previous time-critical removal actions have been conducted on various other portions of the Site, including Parcels A, B, D, I, K, L, M, and O, and are described further in Section II.B.1. below.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

The presence of hazardous substances has been documented at the Site. As shown in the Removal Action Work Plan (RAWP) Addendum 2.1 Revision 1 for Parcels G and V, approved on November 8, 2021 (Attachment 2), soil samples collected as part of the RI during 2016 and 2017 indicated high levels of PAHs, specifically naphthalene, along with the presence of source material (MGP residuals) in Parcels G and V. This finding is similar to data collected on other parcels in the past. During the 2016-2017 field investigation, a maximum level of 1,910 mg/kg of naphthalene was detected in the soil in Parcels G and V. This value significantly exceeds the 860 mg/kg RML concentration for this contaminant, based on an industrial use scenario. The RML represents a risk value corresponding to a cancer risk greater than 10^{-4} or a hazard quotient greater than 3.

Naphthalene is a hazardous substance as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. § 302.4. Acute exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion. Chronic exposure of workers to naphthalene has been reported to cause cataracts and damage to the retina. Hemolytic anemia has also been reported in infants born to mothers who inhaled and ingested naphthalene during pregnancy.

Although there are no active operations being conducted on these parcels and access restrictions, including fencing, are employed to limit exposures, a potential exposure risk exists from MGP residuals at or near the ground surface. Subsurface contaminant migration is a potential threat to additional receptors.

5. NPL Status

The Site has not been proposed for the NPL. The Site is a Superfund Alternative Site.

6. Maps, pictures and other graphic representations

Graphic representations and tables are referenced throughout and included as attachments.

B. Other Actions to Date

1. Previous actions

Previous actions have taken place at the Site and are summarized as follows:

Remedial Investigation (2008 – Present)

On October 31, 2008, EPA entered into an Administrative Settlement Agreement and Order on Consent (2008 ASAOC), Docket No. V-W-08-C-917 with PGL to conduct a remedial investigation and feasibility study (RI/FS) of the Site. Site investigation activities have been completed at Parcels G and V as part of the ongoing RI of the Site to determine the nature and extent of contamination in soil, groundwater, and soil vapor.

Soil borings, test pits, soil vapor probes, and groundwater monitoring wells were completed and sampled on Parcels G and V from January 2016 through September 2020. The methods and findings of the RI activities at Parcels G and V were reported along with those of the other parcels composing the Site in the RI Report submitted to the EPA in December 2020. Soil analytical tables from the RI activities at Parcels G and V are included in Table 1.

Removal Actions (2011 – Present)

EPA entered into the September 12, 2011 ASAOC, Docket No. V-W-11-C-981 with PGL for performance of a TCRA to address threats from uncontrolled hazardous wastes on Parcels A, B,

and O at the Site, including soils containing elevated levels of PAHs. The actions taken under the 2011 ASAOC are detailed in the original October 12, 2011 Action Memorandum.

Subsequent amendments to the Action Memorandum on November 19, 2012, September 30, 2014, and April 20, 2016 expanded the scope of the removal actions to include Parcels L, I, and K, respectively. Removal activities at these parcels, as well as Parcels D and M, included targeted excavation of contaminated soil, transportation and off-site disposal of excavated material, and backfilling with clean fill.

Parcel K, located directly to the east of Parcels G and V, underwent a TCRA in 2016 and 2017. Approximately 480 linear feet of sheet pile were advanced to support excavations up to 14 feet bgs along the Parcel K - Parcel G boundary. The sheet pile was advanced to approximately 25 feet bgs. As a result of the TCRA on Parcel K, no known MGP impacts are located on Parcel K adjacent to Parcel G within the bounds of the sheet pile wall.

In 2020 a TCRA was conducted in the West 35th Place right-of-way to the south of Parcels G and V, which included the removal of impacted soils to depths of 14 to 16 feet bgs. An area of approximately 20 feet by 33 feet of Parcel G extends into the West 35th Place roadway that was included in this removal action. Approximately 400 linear feet of sheet pile were advanced to support the excavations along the shared boundary of Parcels G, V, and K and West 35th Place. The sheet pile was advanced to approximately 26 feet bgs. This is the only known removal action to have occurred on Parcels G and V.

2. Current actions

The Site continues to be addressed through the Superfund remedial process. After completion of the TCRA and through the Superfund remedial process, EPA will complete its evaluation of the residual risks to human health and the environment presented by the presence of PAHs and other contaminants within Parcels G and V. This evaluation will consider data collected and analyses performed as part of the TCRA described in this Action Memorandum. EPA will then issue a Record of Decision (ROD) for the Site.

C. State and Local Authorities' Roles

1. State and local actions to date

Multiple investigations have been performed at the Site over approximately 20 years, with most of the prior investigation work conducted on PGL-owned parcels with the intent of seeking closure through Illinois EPA's Site Remediation Program. Illinois EPA conducted a preliminary assessment (PA) at the Site from April 2007 to March 2008. As noted in Section II.B.1. above, following the PA, EPA entered into the 2008 ASAOC with PGL to conduct an RI/FS of the Site. Illinois EPA has been the support agency for subsequent response actions at the Site.

2. Potential for continued State/local response

EPA approved the RAWP for Parcels G and V in consultation with Illinois EPA. EPA anticipates that Illinois EPA will remain the support agency for the remaining necessary response actions following the completion of the TCRA described herein.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the Peoples Gas Crawford Station Former MGP Site present an imminent and substantial threat to the public health, or welfare, and the environment, and meet the criteria for a time-critical removal action as provided for in the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(1), based on the factors in 40 C.F.R. § 300.415(b)(2). These factors were initially documented in the Action Memorandum signed on October 12, 2011 and continue to apply to the Site. Specific to Parcels G and V, unacceptable human health risks were documented in the risk assessment analysis presented as part of the RAWP Addendum 2.1 Revision 1 for Parcels G and V, dated November 2, 2021 and approved by EPA on November 8, 2021.

IV. ENDANGERMENT DETERMINATION

Given the site conditions, the nature of the known and suspected hazardous substances on site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response actions selected in this Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. PROPOSED ACTIONS

A. Proposed Actions

1. Proposed action description

The following response actions are required to mitigate threats posed by the presence of hazardous substances at the Peoples Gas Crawford Station Former MGP Site:

- Development and implementation of site plans, including a site-specific Work Plan, Air Monitoring and Fugitive Emissions Management Plan, Health and Safety Plan, Sampling and Analysis Plan, and Construction Quality Assurance (CQA) Plan;

- Maintenance of site security;

- Surveying of Parcels G and V;

- Site preparation, including protection of utilities, installation of runoff and erosion controls, clearing and grubbing, abandonment of monitoring wells located in removal action areas, and construction of a temporary on-site access road;

- Pre-confirmation sampling around the perimeter of the treatability area to a depth of 25 feet bgs to confirm the extent of the contamination

- Fugitive emission control and excavation dewatering, if required;

- Excavation of shallow (approximately top six feet) unsaturated soils, including the removal of all subsurface structures and surface concrete pads, to allow for on-site management of ISS swell;

- On-site management and off-site disposal of excavated materials;

- ISS construction and performance to solidify and stabilize MGP source material to a maximum depth of 21 feet;

- Construction testing to ensure treated soil meets the performance specifications in CQA Plan; and

- Site restoration, including backfilling with at least four feet of imported clean fill to allow for future site use flexibility.

Construction testing will include the collection of samples at a variety of treatment depths to ensure ISS performance criteria are met, in accordance with EPA's *Technology Performance Review: Selecting and Using Solidification/Stabilization Treatment for Site Remediation* (EPA/600/R-09/148 November 2009) and Interstate Technology & Regulatory Council's *Development of Performance Specifications for Solidification/ Stabilization* (July 2011). These criteria include an established design goal for hydraulic conductivity of less than 1×10^{-6} cm/s to minimize the flow of groundwater through the monolith and reduce leaching of contaminants. In total, the volume to be addressed by the TCRA is approximately 108,000 cubic yards.

All hazardous substances, pollutants, or contaminants removed off-site pursuant to this removal action for treatment, storage, and disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, with the EPA Off-Site Rule, 40 C.F.R. § 300.440. Arrangements will be made for disposal of contaminated soil at a RCRA-approved facility.

The removal actions will be conducted in a manner not inconsistent with the NCP. The RPM has initiated planning for provision of post-removal site controls consistent with the provisions of 40 C.F.R. § 300.415(l). Post-removal site control activities (e.g., repair of fencing surrounding the property) will be managed by the PRPs.

The threats posed by uncontrolled substances considered hazardous meet the criteria listed in 40 C.F.R. § 300.415(b)(2), and the response actions proposed herein are consistent with any long-term remedial actions which may be required.

2. Contribution to remedial performance

The proposed actions will contribute to the efficient performance of any long-term remedial action with respect to the observed release. Due to the imminent and substantial threat of PAH concentrations above EPA RMLs in soils, the soils in Parcels G and V must be addressed prior to a long-term cleanup. The time-critical removal actions will be consistent with a permanent remedy. Any residual risk on these parcels will be fully evaluated as part of the ongoing RI.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Not Applicable.

4. Applicable or relevant and appropriate requirements (ARARs)

All ARARs will be complied with to the extent practicable.

5. Project schedule

The TCRA will require approximately 12 months to complete. Weather conditions and availability of raw materials may influence the project schedule.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the site conditions, the nature of the hazardous substances documented on Site, and the potential exposure pathways to nearby populations described in Sections II and III above, actual or threatened release of hazardous substances from the Site, if not addressed by implementing the time-critical actions described in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment. Delayed or no action concerning the remaining hazardous substances, pollutants and contaminants at the Site will result in increased potential of the toxic and hazardous substances to release, thereby threatening the environment and the health and welfare of nearby residents and other persons who are in proximity to the Site.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Confidential Enforcement Addendum.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Peoples Gas Crawford Station Former MGP Site in Chicago, Illinois. It was developed in accordance with CERCLA, as

amended, and is not inconsistent with the NCP. This decision is based on the administrative record for the Site (see Attachment 3).

Conditions at the Site continue to meet the NCP criteria at 40 C.F.R. § 300.415(b)(2) for time-critical removal actions. The PRP is expected to perform the time-critical removal action. I recommend your approval of the proposed removal action. You may indicate your decision by signing below.

APPROVE:

X _____

Douglas Ballotti, Director
Superfund & Emergency Management Division
Signed by: DOUGLAS BALLOTTI

DISAPPROVE:

X _____

Douglas Ballotti, Director
Superfund & Emergency Management Division

Enforcement Addendum

Figures:

1. Site Location Map
2. Site Layout
3. Remedial Investigation and Pre-Design Investigation Sample Map
4. Time-Critical Removal Action Area to be Addressed

Tables:

1. Soil Sampling Results by Parcel Compared to Screening Levels
2. PDI Soil Sample Analytical Results

Attachments:

1. Action Memorandum Dated October 12, 2011 (Redacted)
2. Removal Action Work Plan Addendum 2.1 Revision 1 – Parcels G and V
3. Administrative Record Index

cc: S. Ridenour, U.S. EPA, 5104A/B517F (Ridenour.Steve@epa.gov)
J. Nelson, U.S. DOI, **w/o Enf. Addendum** (John_Nelson@ios.doi.gov)
V. Darby, U.S. DOI **w/o Enf. Addendum** (Valincia_Darby@ios.doi.gov)

J. Willman, Illinois EPA **w/o Enf. Addendum** (jerry.willman@illinois.gov)
P. Lake, Illinois EPA **w/o Enf. Addendum** (paul.lake@illnois.gov)
C. Peters, Illinois EPA **w/o Enf. Addendum** (christopher.m.peters@illinois.gov)

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NOT RELEVANT TO SELECTION

OF REMOVAL ACTION

ENFORCEMENT ADDENDUM

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ENFORCEMENT CONFIDENTIAL

NOT SUBJECT TO DISCOVERY

FOIA EXEMPT

NOT RELEVANT TO SELECTION

OF REMOVAL ACTION

FIGURE 1

SITE LOCATION MAP

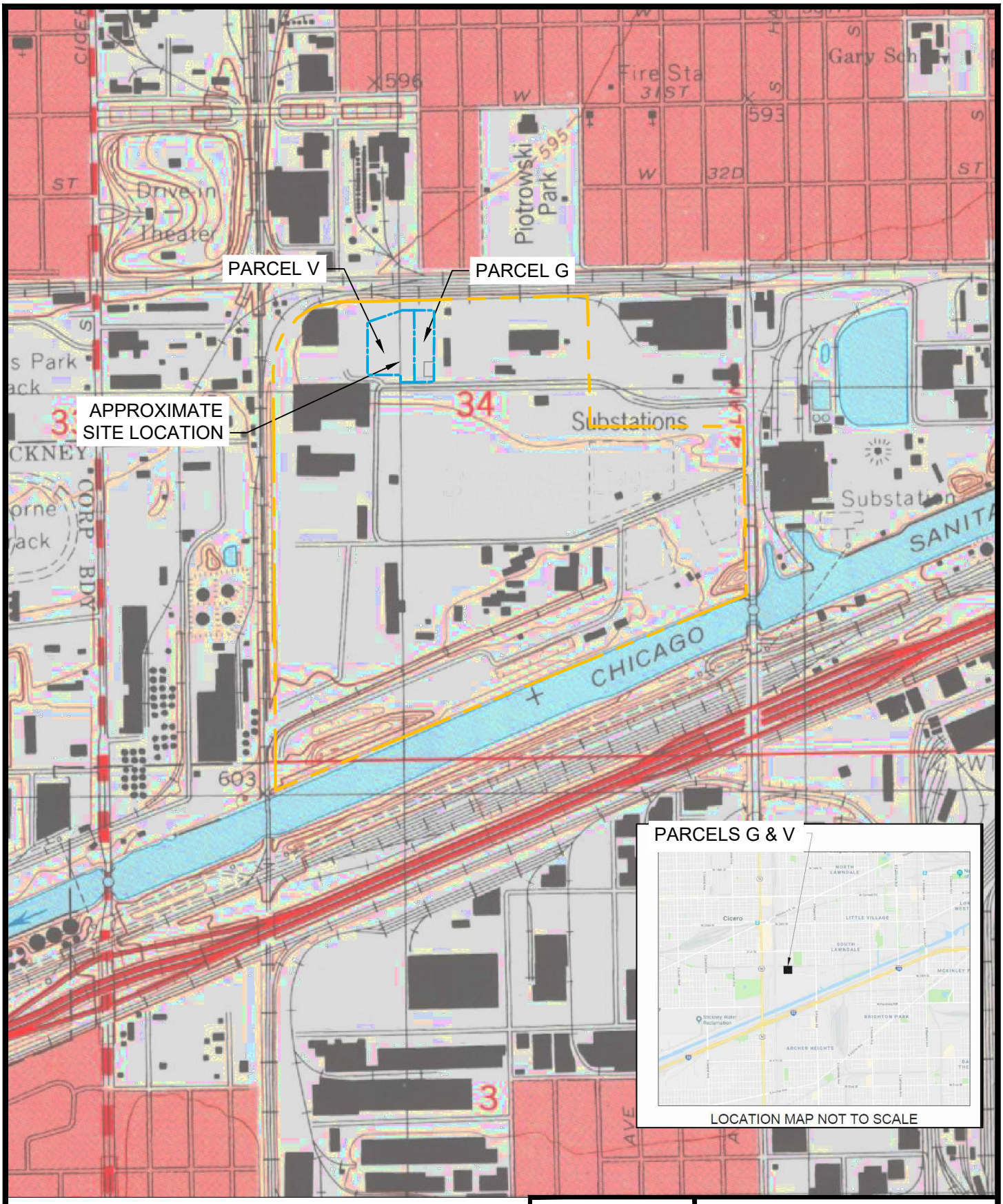

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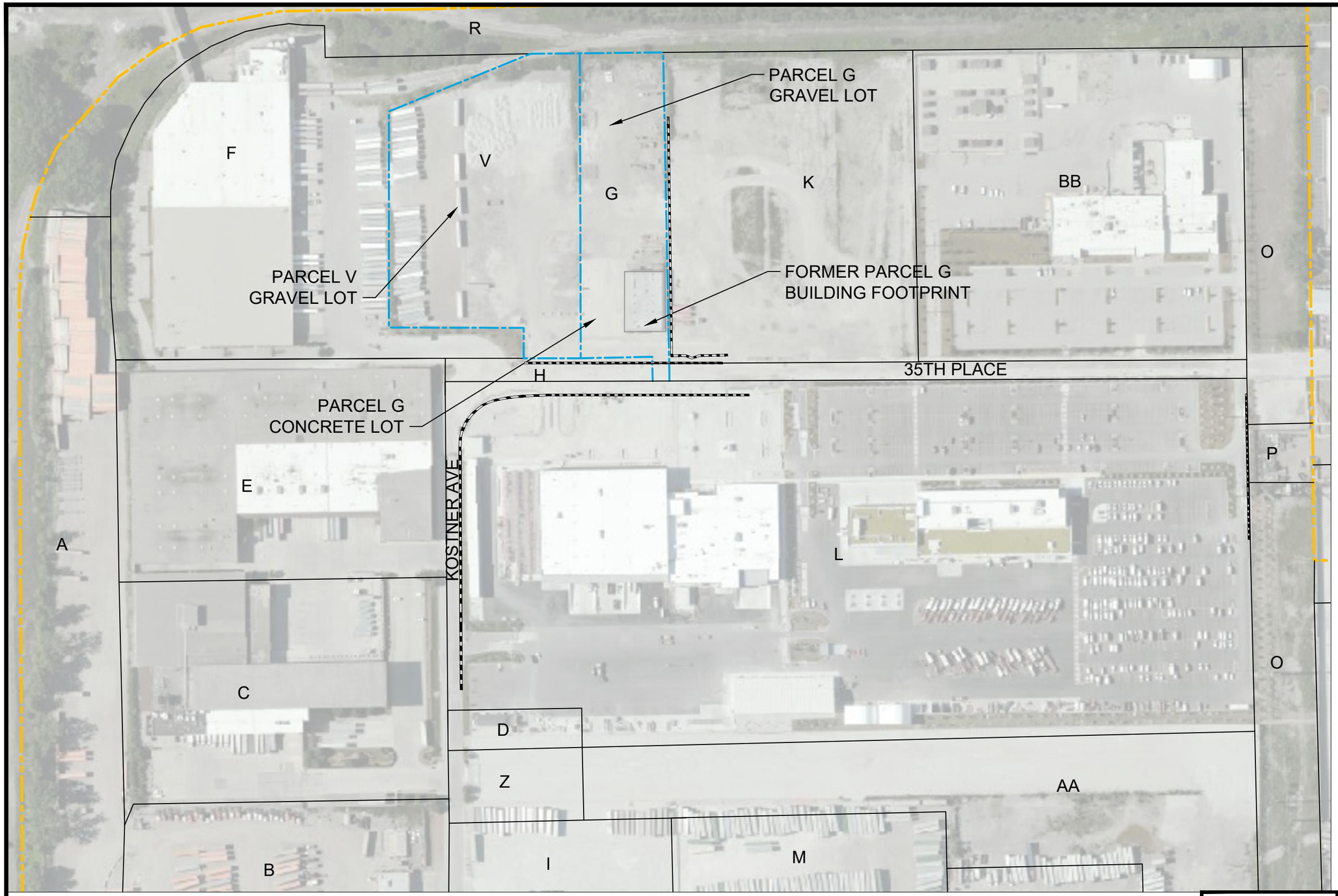
Figure 1 - Site Location Map

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

FIGURE 2

SITE LAYOUT



NOTE :

PARCEL G BUILDING HAS BEEN RAZED.

LEGEND :

CRAWFORD MGP UPLAND SITE BOUNDARY

APPROXIMATE PARCEL G & V BOUNDARY

SHEETPILE LOCATION

NORTH

0 200' 400'

SCALE IN FEET

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Figure 2 - Site Layout

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

FIGURE 3

REMEDIAL INVESTIGATION AND PRE-DESIGN INVESTIGATION SAMPLE MAP

NOTE : PARCEL G BUILDING HAS BEEN RAZED.

LEGEND :

- CRAWFORD MGP UPLAND SITE BOUNDARY
- SOIL BORING, SOIL VAPOR, OR MONITORING WELL LOCATION (REMEDIAL INVESTIGATION)
- TEST PIT LOCATION (REMEDIAL INVESTIGATION)
- APPROXIMATE PARCEL BOUNDARY
- PARCEL G & V BOUNDARY
- SHEETPILE LOCATION
- RAILROAD TRACKS
- OHE — OVER HEAD ELECTRIFICATION
- SAN — SANITARY LINE
- STORM — STORM LINE
- UGC — UNDERGROUND COMMUNICATION LINE
- TEST PIT LOCATION (PRE-DESIGN INVESTIGATION)
- SOIL BORING LOCATION (PRE-DESIGN INVESTIGATION)

ABBREVIATIONS :

GSB - PARCEL G SOIL BORING

MWG - PARCEL G PIEZOMETER

GSV - PARCEL G SOIL VAPOR POINT

VSB - PARCEL V SOIL BORING

MWV - PARCEL V MONITORING WELL

PV - PARCEL V PIEZOMETER

NORTH

0 100' 200'

SCALE IN FEET

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Figure 3 - Remedial Investigation and Pre-Design Investigation Sample Map

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

FIGURE 4

TIME-CRITICAL REMOVAL ACTION AREA TO BE ADDRESSED

NOTE : PARCEL G BUILDING HAS BEEN RAZED.

LEGEND :

- SOIL BORING, SOIL VAPOR, OR MONITORING WELL LOCATION
- TEST PIT EXCAVATION
- APPROXIMATE PARCEL BOUNDARY
- PARCEL G & V BOUNDARY
- 21 FEET BGS
- 16 FEET BGS
- 12 FEET BGS
- 7 FEET BGS
- SHEETPILE LOCATION
- SANITARY LINE
- STORM LINE
- UNDERGROUND COMMUNICATION LINE
- GAS LINE

Depth (ft): X
Area (sq. ft.) / Volume (cu. yd.)

NORTH

0 70' 140'

SCALE IN FEET

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Figure 4 - Time-Critical Removal Action
Area to be Addressed

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

TABLE 1

SOIL SAMPLING RESULTS BY PARCEL COMPARED TO SCREENING LEVELS

Table 1. Soil Sampling Results by Parcel Compared to Risk Assessment Framework SLs

Remedial Investigation Report - Crawford Upland Site
The Peoples Gas Light and Coke Company
Former Crawford Station MGP
Cook County, Chicago, IL
USEPA ID: ILN000510192 and CERCLIS ID: ILN000510192

					PVOC		PVOC		PVOC		PVOC		PVOC		PVOC		PVOC		VOC		PAH		PAH	
9-digit Code	Parcel	Sample Location	Sample Date	Sample Depth (feet BGS)	1,2,4-Trimethylbenzene		1,3,5-Trimethylbenzene		Benzene		Ethylbenzene		Toluene		Xylene, o		Xylenes, m + p		Xylenes, Total [1]		Styrene		BaP TEQ [2]		TPAH(15) [3]	
				Reporting Units:	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
					Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
				IL Industrial Soil SLs:	**219**		**182**		**5.1**		**25**		**818**		**434**		**388**		**260**		**867**		**15.5**		**132**	
				IL Residential Soil SLs:	*219*		*182*		*1.2*		*5.8*		*818*		*434*		*388*		*260*		*867*		*15.5*		*132*	
				IL Construction Worker Soil SLs:	219		182		2.2		58		42		6.5		6.4		5.6		430		15.5		132	
				Soil 95th TPAH(15), BaP-TEQ, Csat, Ceiling IL SLs:	219		182		1,820		480		818		434		388		260		867		15.5		132	
012716029	G	GSB101	01/27/2016	0.4 - 1.1	0.0173	J	0.0177	U	0.0128	J	0.0152	U	0.0225	J	--		--		0.0593	U	--		0.3921		2.60	
012716030	G	GSB101	01/27/2016	14 - 15	0.0142	U	0.0169	U	0.0108	U	0.0145	U	0.0131	U	--		--		0.0565	U	--		0.0083		0.1559	
012716031	G	GSB101A	01/27/2016	8.5 - 9.5	3.15		0.365	J	0.366		0.706	J	0.169	U	--		--		0.730	U	--		3.14		68.6	
012716026	G	GSB102	01/27/2016	1.3 - 2.1	0.0234	J	0.0185	U	0.0485		0.0159	U	0.0293	J	--		--		0.0620	U	--		2.89		20.3	
012716027	G	GSB102	01/27/2016	13.5 - 14.5	11.3		3.71	J	1.15	J	*10.6*		1.11	U	--		--		7.13	J	--		***48.3***		***1094.12***	
012716028	G	GSB102	01/27/2016	20.7 - 21.5	0.0240	J	0.0167	U	0.0107	U	0.0144	U	0.0130	U	--		--		0.0561	U	--		0.0218		0.4361	
012916052	G	GSB103C	01/29/2016	2.1 - 2.9	0.0144	U	0.0171	U	0.0109	U	0.0147	U	0.0133	U	--		--		0.0573	U	--		0.0109	U	0.0109	U
012916053	G	GSB103C	01/29/2016	17 - 20	0.187		0.0601		0.0248		0.168		0.0217	J	--		--		0.178		--		0.1130		2.10	
012916054	G	GSB103D	01/29/2016	8 - 9.1	99.8		32.3		***41.7***		***169***		20.8		--		--		204		--		8.61		***170***	
012716032	G	GSB104	01/27/2016	1.7 - 2.6	0.0136	U	0.0162	U	0.0103	U	0.0139	U	0.0125	U	--		--		0.0541	U	--		0.5374		4.97	
012716033	G	GSB104	01/27/2016	5 - 5.8	62.4		18.3	J	***18.8***	J	***42.2***	J	12.1	U	--		--		84.2	J	--		***230***		***5525.850***	
012716034	G	GSB104	01/27/2016	19 - 20	0.0637		0.0167	U	0.0107	U	0.0144	U	0.0130	U	--		--		0.0559	U	--		0.0167		0.3432	
092517004	G	GSB106	09/25/2017	0.9 - 1.4	0.0142	U	0.0168	U	0.0107	U	0.0144	U	0.0130	U	0.0163	U	0.0400	U	0.0562	U	--		0.0882		0.7907	
092517005	G	GSB106	09/25/2017	17 - 18	0.0522	J	0.0166	U	0.170		0.0181	J	0.522		0.0391	J	0.0702	J	0.109	J	--		0.0065		0.2102	
092517006	G	GSB106	09/25/2017	21.5 - 23	0.0143	U	0.0169	U	0.0108	U	0.0145	U	0.0131	U	0.0163	U	0.0402	U	0.0565	U	--		0.0069		0.1534	
042716148/042716149 (N)	G	GSV01	04/27/2016	6.5 - 8	11.6		3.46	J	*1.90*	J	*12.6*		1.09	U	--		--		15.1		--		5.06		***183***	
042716150	G	GSV01	04/27/2016	9.5 - 10	1.01		0.178	U	0.739		0.153	U	0.138	U	--		--		0.597	U	--		1.04		13.8	
012816040	G	GSV02 (sb)	01/28/2016	14.5 - 15.4	0.143		0.0282	J	0.460		0.165		1.57		--		--		1.33		--		0.414	U	2.80	
042716151	G	GSV02 (sb)	04/27/2016	5 - 5.7	0.0152	U	0.0180	U	0.0115	U	0.0155	U	0.0140	U	--		--		0.0603	U	--		3.52		34.5	
101017005	G	GSV03	10/10/2017	0.4 - 1.4	0.0284	J	0.0170	U	0.0240		0.0161	J	0.0264	J	--		--		0.0568	U	--		1.83		17.3	
101017006	G	GSV03	10/10/2017	3.5 - 4	0.0969		0.0870		0.153		0.0620		0.144		--		--		0.346		--		5.11		80.1	
101017003	G	GSV04	10/10/2017	0.6 - 1.6	0.0146	U	0.0173	U	0.0110	U	0.0148	U	0.0134	U	--		--		0.0578	U	--		1.40		12.6	
101017004	G	GSV04	10/10/2017	5 - 6	0.0201	U	0.0238	U	0.0152	U	0.0204	U	0.0185	U	--		--		0.0797	U	--		0.2665		2.55	
092517001	G	MWG/PG101	09/25/2017	1.2 - 1.8	0.0327	J	0.0172	U	0.0172	J	0.0368	J	0.0360	J	0.0262	J	0.0551	J	0.0813	J	--		2.28		16.5	
092517002	G	MWG/PG101	09/25/2017	15 - 16	0.0145	U	0.0172	U	0.0109	U	0.0148	U	0.0133	U	0.0166	U	0.0409	U	0.0575	U	--		0.7240		15.6	
092517003	G	MWG/PG101	09/25/2017	10 - 11	2.98		0.278		0.507		1.65		0.0554	J	0.254		1.01		1.26		--		0.1945		3.26	

012816037	V	GSB105	01/28/2016	2 - 2.8	0.0375	U	0.0214	J	0.0405		0.0398	J	0.0403	J	--	--	0.0870	J	--	4.63	41.1
012816038	V	GSB105	01/28/2016	5.9 - 6.1	***231***		81.4	J	***162***		***234***		19.2	J	--	--	***363***		--	***211***	***4583.600***
012816039	V	GSB105	01/28/2016	15 - 16	0.0237	U	0.0169	U	0.0108	U	0.0145	U	0.0131	U	--	--	0.0567	U	--	0.1340	2.56
092717003	V	MWV/PV102	09/27/2017	0.3 - 0.8	0.0126	U	0.0149	U	0.0095	U	0.0128	U	0.0116	U	0.0144	U	0.0355	U	0.0499	U	--	0.0172	0.0933
092717004	V	MWV/PV102	09/27/2017	15 - 16	0.0141	U	0.0168	U	0.0107	U	0.0144	U	0.0130	U	0.0162	U	0.0399	U	0.0561	U	--	0.0072	0.0872
012616018	V	MWV101/PV101	01/26/2016	0.7 - 1.4	0.0143	U	0.0169	U	0.0108	U	0.0146	U	0.0131	U	--		--		0.0567	U	--	0.5235	3.85
012616019	V	MWV101/PV101	01/26/2016	4.3 - 4.9	0.0933		0.0416	J	0.104		0.142		0.0419	J	--		--		0.240		--	2.86	23.9
012616020	V	MWV101/PV101	01/26/2016	5.8 - 6.4	0.0172	U	0.0204	U	0.0130	U	0.0175	U	0.0158	U	--		--		0.0683	U	--	0.0867	0.6564
012516003	V	VSB101	01/25/2016	5.5 - 6.1	0.0148	U	0.0175	U	0.0111	U	0.0150	U	0.0136	U	--		--		0.0585	U	--	2.50	20.6
012516004	V	VSB101	01/25/2016	1.9 - 2.5	0.0148	U	0.0175	U	0.0112	U	0.0150	U	0.0136	U	--		--		0.0586	U	--	0.4494	3.08
012516007	V	VSB102	01/25/2016	2 - 2.7	0.0145	U	0.0172	U	0.0110	U	0.0148	U	0.0133	U	--		--		0.0576	U	--	1.30	9.27
012516008	V	VSB102	01/25/2016	5.9 - 6.6	0.0162	U	0.0192	U	0.0122	U	0.0165	U	0.0149	U	--		--		0.0642	U	--	0.1138	0.8133
012516005	V	VSB103	01/25/2016	1.9 - 2.7	0.0154	U	0.0183	U	0.0117	U	0.0157	U	0.0142	U	--		--		0.0613	U	--	2.84	29.1
012516006	V	VSB103	01/25/2016	6.6 - 7.5	0.0158	U	0.0187	U	0.0119	U	0.0161	U	0.0145	U	--		--		0.0628	U	--	0.1449	1.03
012516001	V	VSB104	01/25/2016	1.7 - 2.5	0.0149	U	0.0176	U	0.0112	U	0.0151	U	0.0137	U	--		--		0.0589	U	--	0.893	8.16
012516002	V	VSB104	01/25/2016	8 - 9.2	0.0146	U	0.0173	U	0.0110	U	0.0148	U	0.0134	U	--		--		0.0578	U	--	0.997	8.24
012616011	V	VSB105	01/26/2016	1 - 1.7	0.0150	U	0.0178	U	0.0113	U	0.0153	U	0.0138	U	--		--		0.0595	U	--	0.1718	1.48
012616013	V	VSB105	01/26/2016	16 - 17	0.0287	J	0.0167	U	0.0106	U	0.0254	J	0.0130	U	--		--		0.0559	U	--	0.0198	0.4231
012616014	V	VSB106	01/26/2016	1.3 - 2.2	0.0155	U	0.0184	U	0.0117	U	0.0158	U	0.0143	U	--		--		0.0616	U	--	0.0875	0.7836
012616016/012616017 (N)	V	VSB106	01/26/2016	16 - 17.8	0.0143	U	0.0169	U	0.0108	U	0.0145	U	0.0131	U	--		--		0.0567	U	--	0.0436	0.5989
012716023	V	VSB107	01/27/2016	4.3 - 5	0.0428	J	0.0213	J	0.160		0.0471	J	0.138		--		--		0.142	J	--	0.2942	2.36
012716024	V	VSB107	01/27/2016	8 - 9.1	4.90		1.15		0.331		4.60		0.171	U	--		--		1.31	J	--	5.69	119
012716025	V	VSB107	01/27/2016	12 - 14.3	0.0174	J	0.0171	U	0.193		0.0286	J	0.0133	U	--		--		0.0572	U	--	0.0109	U 0.1018
092517007	V	VSB108	09/25/2017	0.7 - 1.4	0.0129	U	0.0153	U	0.0098	U	0.0132	U	0.0119	U	0.0148	U	0.0365	U	0.0514	U	--	0.2881	1.75
092517008	V	VSB108	09/25/2017	17 - 18	0.118		0.0288	J	0.0104	U	0.0704		0.0127	U	0.0283	J	0.0390	U	0.0548	U	--	2.42	60.1

Analyte concentration exceeds the standard for:

BOLD	**IL Industrial Soil SLs**
Italic	*IL Residential Soil SLs*
Underline	IL Construction Worker Soil SLs
Blue Font	Soil 95th TPAH(15), BaP-TEQ, C_{sat}, Ceiling IL SLs
Pink Highlighting	result exceeds one or more screening criteria
Yellow Highlighting	analyte exceedance in statistics for one or more samples

Statistics do not include any "R" flagged results (rejected data)

Acronyms:

(N) = Normalized sample locations created from combining parent and field duplicate samples following EPA protocol
BaP TEQ = Benzo(a)pyrene Toxicity Equivalent Quotient
BGS = Below ground surface
CERCLIS = Comprehensive Environmental Response, Compensation, and Liability Information System
C_{sat} (or Csat) = Soil Saturation Limit Concentration
EPA = Environmental Protection Agency
mg/kg = milligrams per kilogram
MGP = Manufactured Gas Plant
NS = No Screening Level
PAH = Polycyclic Aromatic Hydrocarbon
PVOC = Petroleum Volatile Organic Compound
RAF = Risk Assessment Framework
RSL = Regional Screening Level (USEPA)
SL = screening level
SVOC = Semi-Volatile Organic Compound
TPAH = Total PAHs
USEPA = United States Environmental Protection Agency
VOC = Volatile Organic Compound

Results & Flags:

-- = Analysis not performed
J = Estimated Concentration
J- = Indicates a concentration estimated with low bias
J+ = Indicates a concentration estimated with high bias
R = Result rejected during validation
U = Concentration was not detected above the reported limit

Lab comments, additional data qualifiers and definitions can be found in associated laboratory and validation reports.

Result values/flags may differ from lab report values/flags due to changes applied in third party validation report.

Superscript Notes:

1. Total Xylenes were calculated for 2002 data by Ramboll as follows:
   a. Where no detections were observed, the sum of the reporting limits is presented.
   b. Where detections were observed, only the detected results were added together for the total summation.
   c. Analytes used for the calculation are Xylene-o and Xylenes-m+p.

2. BaP TEQ is calculated as the sum of the (seven) carcinogenic PAH concentrations multiplied by their respective relative potency factor.
   a. Where no detections were observed, the maximum individual reported detection limit is presented.
   b. Where detections were observed, calculation used the values of detected results and half the reporting limit of the non-detected results.
   c. For BaP TEQ, the seven carcinogenic PAHs and their relative potency factors (in parenthesis) are Benzo(a)anthracene (0.1), Benzo(a)pyrene (1), Be

3. Total PAH(15)s were calculated by Ramboll as follows:
   a. Where no detections were observed, the maximum individual reported detection limit is presented.
   b. Where detections were observed, calculation used the values of detected results and half the reporting limit of the non-detected results.
   c. The list of Total PAH (15) is as follows: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene,

4. 3 & 4-Methylphenol screening levels were used to compare against the 4-Methylphenol results.

Screening Levels:

TPAH(15) and BaP-TEQ criteria: Per USEPA approval January 2016, background PAH values presented were calculated using USEPA's ProUCL version 5.0 s
Screening Levels used on this table were presented in the Multi-Site Risk Assessment Framework (RAF) Addendum Revision 6, issued in August 2017. Sinc
Ceiling value for chromium is for residential and industrial land use; remaining ceiling values are for industrial land use only.
Ceiling values are listed for anthracene, phenanthrene, phenol, aluminum, barium, chromium, and iron only. Remaining SLs listed are C_{sat}.

PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	PAH	SVOC	SVOC
2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Carbazole	Dibenzofuran
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag	Result Flag
3,000	**45,000**	**45,000**	**100,000**	**21**	**2.1**	**21**	**23,000**	**210**	**2,100**	**2.1**	**30,000**	**30,000**	**21**	**8.6**	**100,000**	**23,000**	**290**	**1,000**
240	*3,600*	*3,600*	*18,000*	*1.1*	*0.11*	*1.1*	*1,800*	*11*	*110*	*0.11*	*2,400*	*2,400*	*1.1*	*2*	*18,000*	*1,800*	*32*	*73*
816.181	100,000	61,214	100,000	170	17	170	61,214	1,700	17,000	17	82,000	82,000	170	1.8	61,214	61,000	6,200	816.181
NS	NS	NS	100,000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	100,000	NS	NS	NS
0.0377 J	0.0247 J	0.141	0.0838	0.173 J-	*0.278*	0.219	0.220	0.212 J-	0.216	0.0562	0.261	0.0269 J	0.164	0.0418	0.144	0.386	6.20	9.42
0.0461	0.0146 J	0.0087 U	0.0101 U	0.0067 UJ	0.0069 U	0.0097 U	0.0103 J	0.0108 UJ	0.0153 J	0.0071 U	0.0097 U	0.0097 U	0.0074 U	0.0329	0.0584	0.0139 J	0.0305 U	0.0236 U
8.08	18.0	1.96	3.08	*1.34* J-	***2.55***	0.864 J	2.36	0.889 UJ	1.42 J	0.589 U	4.90	5.18	0.776 J	***34.2***	13.3	12.2	0.315 U	0.546 J
0.213 U	0.213 U	0.204 J	0.579	*1.53* J-	*2.01*	*2.16*	1.26	1.50 J-	1.91	*0.393* J	2.83	0.213 U	1.05	0.281 J	2.11	2.63	0.0644 J	0.0985
15.1 J	188	46.8	59.4	***22.6*** J-	***40.3***	10.3 U	40.4	*16.4* J-	24.1	7.55 U	92.3	60.0	*12.9* J	***297***	251	231	1.61 U	8.44
0.0908	0.0560	0.0120 J	0.0215	0.0092 J-	0.0164 J	0.0096 U	0.0222	0.0107 UJ	0.0180 J	0.0071 U	0.0369	0.0221	0.0073 U	0.109	0.118	0.0865	0.0302 U	0.0234 U
0.0099 U	0.0099 U	0.0088 U	0.0102 U	0.0068 UJ	0.0070 U	0.0099 U	0.0075 U	0.0109 UJ	0.0091 U	0.0072 U	0.0099 U	0.0099 U	0.0075 U	0.0099 U	0.0099 U	0.0099 U	0.0309 U	0.0239 U
0.441	0.185	0.107	0.182	0.102 J-	0.0808	0.0442	0.0334 J	0.0443 J-	0.132	0.0149 J	0.176	0.121	0.0212 J	0.608 J-	0.605	0.255	0.0300 U	0.0232 U
87.4	18.2	18.6	13.3	*8.38* J-	***5.73*** J	4.41 U	3.36 U	4.89 UJ	10.0	3.24 U	11.0	19.0	3.35 U	***162***	39.7	16.6	0.692 U	1.52 J
0.0221 J	0.0357 J	0.0241 J	0.184	0.381 J-	*0.376*	0.339	0.184	0.327 J-	0.407	0.0683	0.973	0.0540	0.174	0.0233 J	0.698	0.750	0.0292 U	0.0226 U
552	634	200	227	***112*** J-	***196***	***64.3***	196	*88.6* J-	*137*	16.5 U	564	311	***67.7***	***658***	1,370	1,350	3.52 U	39.0
0.125	0.0325	0.0122 J	0.0132 J	0.0070 J-	0.0115 J	0.0096 U	0.0187 J	0.0107 UJ	0.0194	0.0071 U	0.0245	0.0169 J	0.0073 U	0.0699	0.114	0.0560	0.0302 U	0.0233 U
0.0424	0.0062 J	0.0332	0.0302	0.0420	0.0617	0.0423	0.0966	0.0489	0.0581	0.0132	0.0805	0.0085 J	0.0433	0.0626	0.110	0.116	0.0304 U	0.0235 U
0.208	0.0191 J	0.0461	0.0132 U	0.0073 U	0.0058 U	0.0065 U	0.0101 J	0.0058 U	0.0104 J	0.0052 U	0.0120 U	0.0112 J	0.0051 U	0.706	0.0606 J	0.0223 J	0.0301 U	0.0233 U
0.0624	0.0200	0.0039 J	0.0067 U	0.0037 U	0.0047 J	0.0037 J	0.0130	0.0030 J	0.0095 J	0.0026 U	0.0092 J	0.0085 J	0.0027 J	0.0831	0.0477	0.0210	0.0306 U	0.0236 U
63.3 J	39.4 J	3.72 J	14.2 J	1.10 J	***4.49*** J	1.01 U	4.36 J	1.12 UJ	1.27 J	0.741 U	16.0 J	11.7 J	0.767 U	***122*** J	52.3 J	33.1 J	0.634 U	1.58 J
1.77	1.71	0.530	0.868	0.364 J	*0.865*	0.256 J	1.07	0.336 J-	0.451	0.151 U	0.997	0.645	0.349 J	***12.6***	3.22	2.07	0.129 U	0.0996 U
0.841	0.374 U	0.419 J	0.388 U	0.260 UJ	0.268 U	0.374 U	0.285 U	0.414 UJ	0.346 U	0.275 U	0.374 U	0.374 U	0.284 U	***17.6***	0.374 U	0.374 U	0.0293 U	0.0227 U
0.492	0.827	0.858	1.66	*2.25*	***2.47***	*1.90*	1.75	2.00 J-	2.70	*0.488*	4.81	0.765	*1.25*	1.36	5.31	5.54	0.594	0.385
0.326	0.167	0.611	0.686	*1.31*	*1.29*	*1.23*	0.713	1.03	1.47	*0.226*	2.72	0.254	0.574	0.552	1.97	3.14	0.157 J	0.0646 J
1.40	3.05	3.02	5.37	*4.52*	***3.66***	*2.07*	1.63	2.07	5.18	*0.636*	8.73	5.40	*1.29*	0.872 J	20.4	13.1	0.311 U	0.240 U
0.0882 J	0.0597 J	0.209	0.433	1.00	*0.979*	0.973	0.405	0.946	1.07	*0.175*	2.26	0.191	0.444	0.137 J	1.46	2.08	0.0674 J	0.0482 U
0.0162 J	0.0309	0.0408	0.106	0.192	*0.181*	0.140	0.125	0.153	0.207	0.0406	0.421	0.0328	0.0997	0.0210 J	0.333	0.449	0.0482 J	0.0332 UJ
0.215	0.101 J	0.409	0.511	*1.37*	*1.69*	*2.24*	0.619	0.986	1.49	*0.171*	2.29	0.188	0.542	0.425	1.42	2.56	0.248 J	0.0721 UJ
3.01	0.598	2.06	1.20	0.819	*0.510*	0.406	0.166	0.145 J	0.933	0.0757 J	1.12	1.62	0.134 J	*5.89*	4.08	1.74	0.0931 U	0.145 J
0.885	0.520	0.142 J	0.203 J	0.223	*0.143*	0.0788 J	0.0576 J	0.0980 J	0.251	0.0309 U	0.265	0.196	0.0462 J	*5.66*	0.618	0.407	0.108 U	0.0838 U

1.18		0.323	J	2.42		1.88		2.95	J-	**3.32**		2.93		1.69		2.74	J-	3.43		0.554		5.80		0.844		1.37		2.79		5.37		5.48		0.301	J	0.314	J
1,260		729		127		240		**127**	J-	**171**		**57.8**	J	114		86.7	J-	151		32.0	U	403		288		**46.1**	J	**1,910**		1,110		917		1.71	U	7.06	
0.182		0.200		0.0772		0.109		0.0702	J-	0.110		0.0566		0.0906		0.0580	J-	0.0943		0.0143	U	0.289		0.119		0.0345	J	0.187		0.610		0.644		0.0306	U	0.0236	U
0.0064	UR	0.0049	UJ	0.0042	UJ	0.0073	UJ	0.0040	UJ	0.0123	J	0.0036	UR	0.0144	J	0.0159	J	0.0090	J	0.0039	J	0.0066	UJ	0.0053	UJ	0.0043	J	0.0107	UR	0.0148	UJ	0.0082	J	0.269	U	0.208	U
0.0158	J	0.0045	U	0.0038	U	0.0066	U	0.0037	U	0.0050	J	0.0042	J	0.0073	J	0.0035	J	0.0090	J	0.0026	U	0.0066	J	0.0048	U	0.0026	J	0.0097	U	0.0244	J	0.0116	J	0.0302	U	0.0234	U
0.111		0.0390	U	0.252		0.216		0.298	J-	0.390		0.312		0.133		0.330	J-	0.378		0.0565	J	0.467		0.0390	U	0.123		0.131		0.285		0.580		0.0306	U	0.0237	U
1.21		0.958		2.19		1.76		1.43	J-	**2.23**		1.41		0.983		1.60	J-	1.98		0.267	J	1.95		0.914		0.635		1.50		1.43		4.23		1.60	U	1.23	U
0.0147	J	0.0117	U	0.0105	U	0.0141	J	0.0471	J-	0.0570		0.0620		0.0410		0.0517	J-	0.0696		0.0148	J	0.0990		0.0117	U	0.0340		0.0325		0.0689		0.0803		0.147	U	0.114	U
0.206		0.0806	U	0.822		0.838		1.85	J-	1.78		1.97		0.600		1.66	J-	2.08		0.267		3.01		0.116	J	0.595		0.257		1.58		3.46		0.316	U	0.244	U
0.0987		0.0198	J	0.184		0.141		0.223	J-	0.321		0.313		0.163		0.212	J-	0.310		0.0592		0.347		0.0225		0.132		0.0915		0.204		0.430		0.0437	J	0.0368	J
0.229		0.106		0.551		0.479		0.673	J-	0.954		0.735		0.467		0.697	J-	0.840		0.167		1.06		0.103		0.344		0.250		0.686		1.41		0.0440	J	0.0352	J
0.0142	J	0.0111	U	0.0099	U	0.0203	J	0.0619	J-	0.0796		0.0881		0.0403		0.0673	J-	0.0837		0.0147	J	0.124		0.0111	U	0.0372		0.0404		0.0692		0.111		0.0347	U	0.0268	U
0.213	J	0.466		0.230	J	1.51		1.99	J-	2.04		1.97		0.780		1.74	J-	2.20		0.316	J	5.31		0.553		0.751		0.211	U	4.76		4.51		0.192	J	0.138	J
0.0108	U	0.0108	U	0.0097	U	0.0283		0.0855	J-	0.106		0.0894		0.0445		0.0858	J-	0.101		0.0164	J	0.165		0.0108	U	0.0401		0.0397		0.0878		0.166		0.0339	U	0.0262	U
0.128		0.242		0.0363	U	0.363		0.683	J-	0.637		0.609		0.200		0.583	J-	0.721		0.100		1.42		0.135		0.207		0.117		1.08		1.17		0.0318	U	0.0713	J
0.0736	J	0.0731	J	0.0480	J	0.306		0.710	J-	0.726		0.656		0.248		0.729	J-	0.776		0.103		1.51		0.0822		0.236		0.0667	J	0.808		1.23		0.125	U	0.0964	U
0.0585		0.0212	J	0.0183	U	0.0632		0.131	J-	0.128		0.0979		0.0473		0.0846	J-	0.173		0.0170	J	0.199		0.0234	J	0.0288	J	0.0410		0.166		0.300		0.0321	U	0.0923	
0.118		0.0601		0.010	J	0.0243		0.0096	J-	0.0144	J	0.0096	U	0.0109	J	0.0106	UJ	0.0194		0.0071	U	0.0329		0.0233		0.0073	U	0.138		0.124		0.0769		0.0302	U	0.0233	UJ
0.0108	J	0.0248		0.0095	U	0.0345		0.0657	J-	0.0629		0.0625		0.0194	J	0.0588	J-	0.0693		0.0093	J	0.132		0.0136	J	0.0187	J	0.0149	J	0.0864		0.121		0.0332	U	0.0257	U
0.0701	J	0.0556		0.0205		0.0236		0.0204	J-	0.0351		0.0145	J	0.0393		0.0140	J	0.0268		0.0072	U	0.0629		0.0188	J	0.0127	J	0.0838		0.0811	J	0.170		0.0306	U	0.0236	U
0.113		0.0488		0.136		0.116		0.183	J-	0.216		0.127		0.147		0.153	J-	0.236		0.0365	J	0.235		0.0406		0.0898		0.185		0.213		0.383		0.0311	U	0.0358	J
23.9		24.3		3.11	J	7.48		3.50	J-	**4.42**		1.75	J	3.63		1.80	UJ	3.94		1.19	U	8.96		8.50		1.35	J	**56.0**		27.0		19.5		0.318	U	0.983	
0.0342		0.0098	U	0.0088	U	0.0102	U	0.0068	UJ	0.0070	U	0.0098	U	0.0080	J	0.0109	UJ	0.0091	U	0.0072	U	0.0098	U	0.0098	U	0.0075	U	0.0219		0.0288		0.0117	J	0.0309	U	0.0239	U
0.0106	UJ	0.0082	UJ	0.0070	UJ	0.0126	J-	0.140	J-	0.227	J-	0.0165	J-	0.0866	J-	0.278	J-	0.311	J-	0.0366	J-	0.207	J-	0.0088	UJ	0.0579	J-	0.0178	UJ	0.0550	J-	0.312	J-	0.277	UJ	0.214	UJ
9.39		10.7		1.50		3.26		1.17		2.05		0.525		2.61		0.805		1.31		0.117	J	4.89		2.98		0.782		**11.1**		14.0		13.5		0.296	U	0.253	J

nzo(b)fluoranthene (0.1), Benzo(k)fluoranthene (0.01), Chrysene (0.001), Dibenz(a,h)anthracene (1) and Indeno(1,2,3-cd)pyrene (0.1).

Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene and Pyrene

oftware to perform the statistical assessment (95th Percentile) of the USGS (2003) background soil dataset for the City of Chicago (Exponent, 2015)
e that time, six revisions of the RSLs have been published by EPA through May 2020. As a result of these six revisions, there were no updates to the RSLs necessary for the MGP-related constituents evaluated in this table

Phenol		Phenol		Phenol		Phenol		Phenol		Metal		Metal		Metal		Metal		Metal		Metal		Metal		Metal		Metal		Metal		Cyanide	
2,4-Dimethylphenol		2-Methylphenol		3 & 4-Methylphenol		4-Methylphenol[4]		Phenol		Antimony, Total		Arsenic, Total		Cadmium, Total		Chromium, Hexavalent		Chromium, Total		Chromium, Trivalent		Lead, Total		Mercury, Semi-Mobile		Mercury, Total		Nickel, Total		Selenium, Total		Thallium, Total		Cyanide, Total	
mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
16,000		**41,000**		**41,000**		**41,000**		**100,000**		**470**		**13**		**980**		**NS**		**100,000**		**100,000**		**800**		**350**		**350**		**22,000**		**5,800**		**12**		**1,200**	
1,300		*3,200*		*3,200*		*3,200*		*19,000*		*31*		*13*		*71*		*NS*		*100,000*		*100,000*		*400*		*23*		*23*		*1,500*		*390*		*0.78*		*78*	
41,000		100,000		100,000		100,000		61,000		82		61		200		NS		690		NS		700		61		61		4,100		1,000		160		4,100	
NS		NS		NS		NS		100,000		NS		NS		NS		NS		100,000		NS		NS		NS		NS		NS		NS		NS		NS	
--		--		--		--		--		--		5.8		--		--		--		--		78.2		--		--		--		--		0.30	J	0.39	J
--		--		--		--		--		--		10.9		--		--		--		--		16.5		--		--		--		--		*0.82*		0.088	U
--		--		--		--		--		--		8.5		--		--		--		--		12.0		--		--		--		--		0.52	J	0.091	U
--		--		--		--		--		--		8.3		--		--		--		--		59.1		--		--		--		--		0.61	J	0.18	J
--		--		--		--		--		--		8.8		--		--		--		--		14.3		--		--		--		--		0.22	J	0.098	U
--		--		--		--		--		--		11.7		--		--		--		--		16.2		--		--		--		--		*0.82*		0.11	U
--		--		--		--		--		--		9.1		--		--		--		--		14.6		--		--		--		--		*0.93*		0.077	J
--		--		--		--		--		--		9.6		--		--		--		--		14.5		--		--		--		--		0.77		0.095	U
--		--		--		--		--		--		7.1		--		--		--		--		17.8		--		--		--		--		0.560	U	0.24	J
--		--		--		--		--		--		3.8		--		--		--		--		32.0		--		--		--		--		0.039	J	0.067	U
--		--		--		--		--		--		6.9		--		--		--		--		8.4		--		--		--		--		0.055	J	0.28	J
--		--		--		--		--		--		***24.3***		--		--		--		--		16.6		--		--		--		--		*0.93*		0.077	U
0.0383	U	0.0352	U	0.0355	U	--		0.0460	U	0.33	J	10.2		0.63	J	--		24.6		--		50.0		--		0.074		27.0		3.1	J	0.53	J	0.33	J
0.0380	U	0.0349	U	0.0352	U	--		0.0456	U	0.19	UJ	13.0		0.25	J	--		27.5		--		16.5		--		0.017	J	36.9		3.2	J	*0.86*		0.099	U
0.0386	U	0.0355	U	0.0358	U	--		0.0463	U	0.38	J	***20.0***		0.76	J	--		21.9		--		23.4		--		0.013	U	45.2		3.5	J	*1.4*		0.13	U
--		--		--		--		--		--		11.8		--		--		--		--		16.9	J+	--		--		--		--		*0.89*		0.17	J+
--		--		--		--		--		--		10.2		--		--		--		--		16.2	J+	--		--		--		--		*0.81*		0.13	U
--		--		--		--		--		--		9.2		--		--		--		--		12.3		--		--		--		--		0.660	U	0.082	U
--		--		--		--		--		--		10.8		--		--		--		--		54.5	J+	--		--		--		--		0.4	J	0.67	J+
0.0773	UJ	0.0710	UJ	0.0716	UJ	--		0.0927	UJ	0.80	J	10.7		1.3		--		21.5		--		149	J	--		0.46		29.6		1.9	J	0.37	J	0.34	
0.393	U	0.361	U	0.364	U	--		0.471	U	0.55	J	9.2		0.55	UJ	--		26.6		--		47.8	J	--		0.056		30.7		1.5	J	0.71	J	0.34	J
0.0788	UJ	0.0724	UJ	0.0730	UJ	--		0.0945	UJ	5.7	J	10.5		2.8		--		87.7		--		*767*	J	--		0.48		98.5		1.4	J	0.14	J	0.76	
0.0543	UJ	0.0499	UJ	0.0503	UJ	--		0.0651	UJ	0.38	J	5.3		0.41	J	--		12.6		--		23.1	J	--		0.051	J	9.1		1.2	J	0.28	J	0.61	
0.118	UJ	0.108	UJ	0.109	UJ	--		0.141	UJ	0.17	UJ	3.9		0.13	J	--		9.3		--		17.0		--		0.094		10.7		1.7	J	0.16	J	0.72	
0.118	U	0.108	U	0.109	U	--		0.141	U	0.19	UJ	11.7		0.11	U	--		28.6		--		13.4		--		0.017	J	31.3		3.5	J	0.48	J	0.16	J
0.137	U	0.126	U	0.127	U	--		0.164	U	0.37	J	12.4		0.47	J	--		31.9		--		33.5		--		0.049		37.7		3.9	J	0.77	J	0.15	J

--	--	--	--	--	--	12.7	--	--	--	--	108	--	--	--	--	0.640 U	0.74 J
--	--	--	--	--	--	11.1	--	--	--	--	39.1	--	--	--	--	0.750 U	0.30 J
--	--	--	--	--	--	8.5	--	--	--	--	13.8	--	--	--	--	0.550 U	0.15 U
0.340 U	0.313 U	0.315 U	--	0.408 U	0.16 U	1.6	0.095 U	--	3.7 J	--	4.9	--	0.012 J	4.8	0.54 J	0.11 U	0.069 U
0.0382 U	0.0351 U	0.0354 U	--	0.0458 U	0.18 U	10.8	0.11 U	--	28.3	--	14.4	--	0.032 J	34.7	3.6 J	0.70 J	0.095 U
--	--	--	--	--	--	10.6	--	--	--	--	16.4	--	--	--	--	0.38 J	0.11 J
--	--	--	--	--	--	***17.4***	--	--	--	--	110	--	--	--	--	0.58 J	0.50 J
--	--	--	--	--	--	***16.8***	--	--	--	--	87.9	--	--	--	--	*1.1*	0.12 J
--	--	--	--	--	--	11.6	--	--	--	--	153	--	--	--	--	0.40 J	0.15 UJ
--	--	--	--	--	--	11.2	--	--	--	--	33.7	--	--	--	--	0.77 J	0.26 J
--	--	--	--	--	--	12.7	--	--	--	--	51.9	--	--	--	--	0.58 J	0.10 J
--	--	--	--	--	--	11.9	--	--	--	--	63.6	--	--	--	--	*0.87* J	0.13 U
--	--	--	--	--	--	12.7	--	--	--	--	74.1	--	--	--	--	0.52 J	0.12 J
--	--	--	--	--	--	8.8	--	--	--	--	48.1	--	--	--	--	0.74 J	0.14 J
--	--	--	--	--	--	9.7	--	--	--	--	46.3	--	--	--	--	0.57 J	0.16 J-
--	--	--	--	--	--	12.7	--	--	--	--	145	--	--	--	--	0.45 J	0.13 J-
--	--	--	--	--	--	9.3	--	--	--	--	34.5	--	--	--	--	*0.79* J	0.23 J
--	--	--	--	--	--	12.3	--	--	--	--	15.5	--	--	--	--	*0.98*	0.13 U
--	--	--	--	--	--	***14.6***	--	--	--	--	21.7	--	--	--	--	0.73	0.096 U
--	--	--	--	--	--	12.7 J	--	--	--	--	15.5	--	--	--	--	*0.83*	0.097 U
--	--	--	--	--	--	9.7	--	--	--	--	24.6	--	--	--	--	*1.1*	0.11 U
--	--	--	--	--	--	7.4	--	--	--	--	12.5	--	--	--	--	0.30 J	0.14 U
--	--	--	--	--	--	10.5	--	--	--	--	15.5	--	--	--	--	*1.0*	0.094 U
0.350 UJ	0.322 UJ	0.325 UJ	--	0.420 UJ	0.17 UJ	3.4	0.13 J	--	7.6	--	25.8	--	0.013 J	9.3	0.91 J	0.11 U	0.076 U
0.374 U	0.344 U	0.347 U	--	0.449 U	0.17 UJ	10.8	0.10 J	--	28.7	--	13.9	--	0.019 J	34.5	3.2 J	0.69	0.13 U

[O:MGP 10/16/20, C:SGW 10/21/20]

TABLE 2

PDI SOIL SAMPLE ANALYTICAL RESULTS

Table 2
Soil Sample Analytical Results
Pre-Design Investigation
Crawford MGP Site - Parcels G & V

Soil Boring Location	Sample Depth (ft bgs)	Parcel	Gasoline Range Organics (GRO) (mg/kg)	Diesel Range Organics (DRO) (mg/kg)	Extended Range Organics (ERO) (mg/kg)	*Total Petroluem Hydrocarbons (TPH) (mg/kg)
CD-03A	7.5-8.0	V	30	ND	37	67
CD-05A	6.8-7.4	V	630	13,000	3,100	16,730
CD-05A	16.0-16.6	V	24	ND	43	67
CD-07	6.1-6.8	G	1,300	35,000	12,000	48,300
CD-07	12.1-12.8	G	53	33	42	128
CD-09B	5.5-6.1	V	26	270	300	596
CD-10A	8.3-8.8	V	70	1,500	590	2,160
CD-10A	12.0-12.5	V	37	51	59	147
CD-10B	5.5-6.0	V	140	3,000	1,600	4,740
CD-10B	8.3-8.9	V	ND	ND	40	40
CD-10C	5.7-6.3	V	33	59	120	212
CD-11A	6.0-6.5	V	25	2,400	1,100	3,525
CD-11A	8.0-8.5	V	ND	ND	40	40
CD-11B	6.0-6.8	V	ND	ND	68	68
CD-12A	13.9-14.4	V	820	14,000	2,500	17,320
CD-12A	20.1-20.6	V	ND	ND	41	41
CD-12B	11.0-11.8	G	3,600	39,000	9,500	52,100
CD-12B	18.4-19.0	G	49	120	92	261
CD-13B	7.0-7.6	V	ND	150	250	400
CD-14A	7.1-7.7	G	120	2,200	530	2,850
CD-14A	12.1-12.8	G	27	26	49	102
CD-14B	10.05-10.55	G	190	1,500	410	2,100
CD-14B	17.8-18.3	G	28	49	57	134
CD-15A	9.5-10	G	ND	32	92	124
CD-15B	5.5-6.1	G	ND	ND	85	85
CD-17B	10.6-11.3	G	630	13,000	2,300	15,930
CD-17B	24.6-25.0	G	32	47	60	139
CD-17D	14.6-15.4	G	6,100	290,000	70,000	366,100
CD-17D	21.0-21.5	G	75	170	110	355

Notes:
1) ft bgs = feet below ground surface
2) mg/kg = milligram/kilogram
3) * = GRO + DRO
4) ND = non-detect
5) shading indicates TPH exceeds default value of 2,000 mg/kg for soil attenuation capacity as defined in TACO Section 742.215

ATTACHMENT 1

ACTION MEMORANDUM DATED OCTOBER 12, 2011 (REDACTED)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

MEMORANDUM

DATE: OCT

SUBJECT: **ENFORCEMENT ACTION MEMORANDUM** - Determination of Threat to Public Health or Welfare or the Environment at the Crawford Station Former MGP Site, Chicago, Illinois (Site ID # B5HK)

FROM: Ross del Rosario, Remedial Project Manager/On-Scene Coordinator
Remedial Response Branch #2 – Section #5

THRU: Linda M. Nachowicz, Chief
Emergency Response Branch #2

TO: Richard C. Karl, Director
Superfund Division1

I. PURPOSE

The purpose of this Action Memorandum is to document the determination of an imminent and substantial threat to public health and the environment at the former Crawford Station MGP Site (Site) in Chicago, Illinois. The proposed removal action is necessary to mitigate the immediate threat to public health and the environment posed by the presence of uncontrolled hazardous wastes on site, including soils containing elevated levels of polynuclear aromatic hydrocarbons (PAH), and to document approval of the proposed time-critical removal action described herein.

The response action proposed herein will mitigate Site conditions by removal and off-site disposal of the contaminated soil. The high levels of PAH in surface and sub-surface soil at concentrations that exceed U.S. EPA Removal Action Levels (RALs) and the Illinois Environmental Protection Agency (IEPA) Tiered Approach to Corrective Action Objectives (TACO), the Site's plans for future construction, and the industrial/commercial use of the property requires that this action be classified as a time-critical removal. Additional activities will include determination of the extent of the contamination, the implementation of an air monitoring plan, water management, and a Site contingency plan. The project will require an estimated 12 months to complete. This removal action will be completed by the potentially responsible party (PRP) pursuant to an Administrative Order on Consent (AOC).

The Crawford Station Site is not on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with this Site.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID # ILN000510192
RCRA ID: None
STATE ID: None
Category: Time-Critical Removal

Physical Location and Description

The former Crawford Station MGP Site is located in the City of Chicago, in the County of Cook. The site address is 3500 South Pulaski Road, Chicago, Illinois. The geographic coordinates of the site are 41° 29' 29" north latitude and -87° 44' 14" west longitude (see Figure 1). The Site is approximately 260 acres, of which 107 acres is currently owned by the PRP, Peoples Gas Light and Coke Company (Peoples Gas). The portion owned by Peoples Gas is currently used as a natural gas regulating and metering facility. The Site is bounded on the south by the Chicago Sanitary and Ship Canal (the "Canal"), on the north by the Chicago and Illinois Western Railroad, on the west by the Chicago and Western Indiana Belt Line Railroad, and to the east by Pulaski Road. Various commercial/industrial buildings and uncovered storage areas exist on the remainder of the Site (see Figure 2).

The area surrounding the Crawford Station MGP Site was screened for Environmental Justice (EJ) concerns using U.S. EPA Region 5's EJ Assist Tool (which applies the interim version of the national EJ Strategic Enforcement Assessment Tool (EJSEAT)). Census tracts with a score of 1, 2, or 3 are considered to be high-priority potential EJ areas of concern according to U.S. EPA Region 5. The Site is in a census tract with a score of 1 (see Attachment 3). Therefore, Region 5 considers this Site to be a high-priority potential EJ area of concern.

B. Site Background

In 1921, the Koppers Company of Pittsburgh and Peoples Gas (n/k/a Integrys) entered into an agreement whereby Koppers built, financed, and operated a by-product coke plant at the Crawford Station. Peoples Gas bought the gas and coke manufactured at the plant for distribution to consumers. Peoples Gas then acquired the facility in 1928. By the late 1930s, the Crawford Station facility produced three types of gas: coke oven gas, carbureted water gas, and reformed natural gas. During the 1930s, several additions and modifications were made to the plant, including construction of a light oil refining plant, addition of liquefied petroleum ("LP") gas peak shaving facilities, and conversion of five of the nine water gas sets to produce reformed natural gas and later oil gas. Production was halted temporarily between 1958 and 1962 and permanently after 1963. The Crawford Station was retired in 1965. Dismantling of the Crawford Station began in 1956 starting with portions of the coke oven plant. The remainder of the Crawford Station was dismantled in 1965. Peoples Gas eventually sold 146 acres of the Crawford Station property to First Industrial Realty Company in 1966.

C. Site Characteristics (Removal Action Area)

The Site has been subdivided into 21 parcels, designated as Parcels A through U. The 3 key parcels that are the subject of this action memo are Parcels A, B, and O, located in the southwest corner of the Site and is approximately 14 acres (i.e., the removal action area or RAA). Key features of the RAA are as follows:

- Generally unimproved open land with grass cover and some scrub trees. Surface topography is generally flat; however a slight depression exists along the approximate boundary of Parcels A & B and Parcel O.

- Natural gas utilities within the removal area and adjacent zones include a series of four high pressure gas mains ranging in size from 24-inch to 42-inch diameter. The gas lines traverse Parcel O and run parallel to the Chicago Sanitary and Ship Canal. At the western limits of Parcel O, two small gas regulator structures are present.

- A large sewer main, owned by the City of Chicago, traverses Parcels B and O in a north to south orientation. The sewer is 18 feet wide by 14 feet 4-inches high and has a cover depth of approximately six feet in the vicinity of the removal area.

- Small storage shed (metal structure) used by Peoples Gas for storage of empty drums. A private access roadway that traverses Parcel O is used by PGL to access the pipeline corridor.

D. Site Evaluation

Various investigations were conducted at the Site by several environmental consultants over the years. An environmental assessment of the Site was performed in 1992 and intrusive site investigations were initiated in 2001. These investigations indicated the presence of volatile organic compounds (VOCs), PAHs, metals, and cyanide in groundwater and soil samples collected in various locations at the Site. Impacts were observed below the water table at depths of up to 26 feet in various borings. These impacts include staining, odors, tar saturated soil, and tar in fractures. Based on results from investigations performed to date, the thickness of the fill layer ranges from 0 to 11 feet across the Site. Evidence of impacts, including tar, tar in fractures, tar-coated sand, naphthalene-type odor, and sheen, have been observed at depths of up to 26 feet at various locations at the Site. VOCs, PAHs, metals, and cyanide were detected in soil samples collected in various locations at the Site. MGP-related constituents were also shown to be migrating mainly through fractures in the brown/gray silty clay unit of the aquifer below the Site.

Specific to Parcels A, B, and O, site investigations conducted in 2001 and 2002 revealed this area to be a source of contamination at the Site. Specifically, the RAA was characterized by a hard layer of tar saturated soils at ground surface to about 4 feet below ground surface (bgs). In addition, investigation findings indicated the presence of tar appearing in fractures in the brown/grey silty clay. The tar in fractures was noted as occurring at a depth of 8 to 13 feet bgs and averaging about 2 feet thick;

In October 2008, U.S. EPA and Integrys entered into an Administrative Order on Consent for Integrys to conduct a remedial investigation and feasibility study of the Site. It was apparent from the contaminants found in the soil and groundwater (e.g., BTEX and PAH), described in the 2001 and 2002 site investigations, that this was the result of past MGP operations and that the RAA is a continuing source of the contamination.

III. THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the Crawford Station Site present an imminent and substantial threat to the public health, or welfare, and the environment, and meet the criteria for a time-critical removal action as provided for in the National Contingency Plan (NCP) Section 300.415(b) (2). These criteria include, but are not limited to, the following:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substance or pollutants or contaminants.

A potential exposure risk is present in the RAA because of the existence of exposed MGP residual materials, including weathered tar at ground surface in multiple locations. Analysis of surface soil samples taken in the RAA during the 2001 investigation (see Attachment 4) indicated the presence of PAHs exceeding the State's TACO Tier 1 screening criteria for soil ingestion and corresponding Superfund RALs, as summarized in the following table:

Compound Name	TACO Tier 1 Screening Level	RAL	Reported Value (mg/kg)
Benzo(a)anthracene	8	230	1,960
Benzo(b)fluoranthene	8	230	1,150
Benzo(a)pyrene	0.8	23	895

Both TACO Tier 1 screening levels and the RALs were based on an industrial/commercial use scenario. Also, elevated benzene levels were found in subsurface soil in this area, ranging in concentration from 0.324 to 519 milligrams per kilogram (mg/kg). For comparison, the benzene TACO Tier I screening criteria for industrial/commercial soil ingestion is 100 mg/kg, while the corresponding RAL is 600 mg/kg. Acute inhalation exposure to PAHs such as benzo(a) anthracene, benzo(b) fluoranthene, or benzo(a) pyrene may cause eye, skin, and respiratory tract irritation. Repeated exposures to benzo(a)pyrene may result in an allergic skin reaction. Ingestion may result in irritation of the digestive tract. Long term chronic exposure to these compounds may cause reproductive or fetal effects. U.S. EPA has categorized these compounds as possible human carcinogens (Group 2A or 2B), with all 3 shown to be mutagenic in laboratory experiments. Benzene is a known human carcinogen. Long-term exposure to high levels of this compound in the air can lead to leukemia and cancers of the blood-forming organs.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

MGP residuals in soil were identified at the surface, containing elevated levels of contaminants exceeding the State's TACO cleanup levels and EPA RALs as described above. Contaminated soil potentially could come in contact with people working nearby (this being an industrial/commercial park). Also, an occasional trespasser may come in contact with contaminated soil in the surface either through dermal contact or inhalation. Typical security measures, including fencing, are currently employed to limit potential exposure.

Actual or potential contamination of drinking water supplies or sensitive ecosystems.

Neither the Canal nor the groundwater underneath the Site is used as a drinking water source at this time. Nor is it within a sensitive ecosystem. However, sediments in the Canal did reveal the presence of contaminants found in the RAA (e.g., PAHs), although the exact exposure pathway(s) for contaminants to migrate to the sediments is unknown at this time. It is not known at this point whether the levels of contaminants in the sediments have any adverse impact to the surrounding ecosystem. While this segment of the canal does not appear to be used for recreational fishing or boating, it is conceivable that such activities may be occurring upstream and/or downstream from this segment. Also, the Canal is a navigable waterbody that is used for commercial shipping between Lake Michigan and the Mississippi River. Possible dermal contact or ingestion of contaminated sediment could occur given the presence of human activity in the Canal.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

Migration could occur as a result of wind action during dry periods, which could pose a breathing hazard. Such wind action could also lead to deposition of materials in uncontaminated areas. Migration of contaminants in surface soil could also occur through surface water flow or groundwater flow during wet periods, due to the high levels of PAHs and benzene found in some of the samples.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the suspected hazardous substances on Site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

The PRP shall implement the U.S. EPA-approved Removal Action Work Plan for Crawford Station MGP Site (Revision 1), dated September 6, 2011. Main components of the approved work plan include the following provisions which require compliance with:

- Preliminary activities such as site security and controls
- Site Preparation, including clearing and grubbing
- Targeted excavation within defined RAA (Figure 3 of work plan)
- Transportation and off-site disposal of excavated material
- Backfilling with clean fill
- Compliance with State and Local Requirements
- Construction Quality Assurance Measures such as
    - Air Monitoring
    - Fugitive Emissions Management Plan
    - Health and Safety Plan
    - Sampling and Analysis Plan
- Schedule for Completion
- Submission of Completion Report

In addition, the RPM has planned for the provision of post-removal Site control consistent with the provisions of Section 300.415(l) of the NCP. It is anticipated that any post-removal Site control will be undertaken by PRP.

The activities described in this memorandum will require an estimated 12 months to complete and cost approximately $15,000,000.

The response actions described in this memorandum directly address the actual or threatened release at the Site of a hazardous substance, or of a pollutant, or of a contaminant which may pose an imminent and substantial endangerment to public health or welfare or to the environment. These response actions do not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

All hazardous substances, pollutants or contaminants removed off Site pursuant to this removal action for treatment, storage, and disposal will be treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Off-Site Rule, 40 CFR 300.440.

Applicable or Relevant and Appropriate Requirements

All Federal and State applicable, relevant, and appropriate requirements (ARARs) will be complied with to the extent practicable.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances and pollutants or contaminants documented on Site, and the potential exposure pathways to nearby populations described in Section II, III, and IV, and V above, actual or threatened releases of hazardous substances and pollutants or contaminants from this Site, if not addressed by implementing or delaying the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment, increasing the potential that hazardous substances will be released, thereby threatening the environment and the health and welfare of nearby residents and other persons who are in proximity to the Site.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum.

IX. RECOMMENDATION

This decision document represents the selected removal action for the former Crawford Station MGP Site, located in Chicago, Illinois, developed in accordance with CERLCA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for the Site. Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action and I recommend your approval of the proposed removal action. You may indicate your decision by signing below.

APPROVE: Laurie Stehmitt DATE: 10/12/11
for Director, Superfund Division

DISAPPROVE: _____ DATE: _____
Director, Superfund Division

Enforcement Addendum

Attachments

1. Administrative Record Index
2. Site Location/Map (Figs. 1 & 2)
3. Environmental Justice Map
4. Soil Sampling Results (2001)

cc: S. Fielding, U.S. EPA, 5203-G
B. Everetts, Illinois EPA, **w/o Enf. Addendum**
S. Davis, Illinois DNR, **w/o Enf. Addendum**
M. Chezik , DOI, **w/o Enf. Addendum**

BCC PAGE

(REDACTED 1 PAGE)

ENFORCEMENT ADDENDUM

CRAWFORD STATION SITE
CHICAGO, ILLINOIS

(REDACTED 1 PAGE)

Attachment 1

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

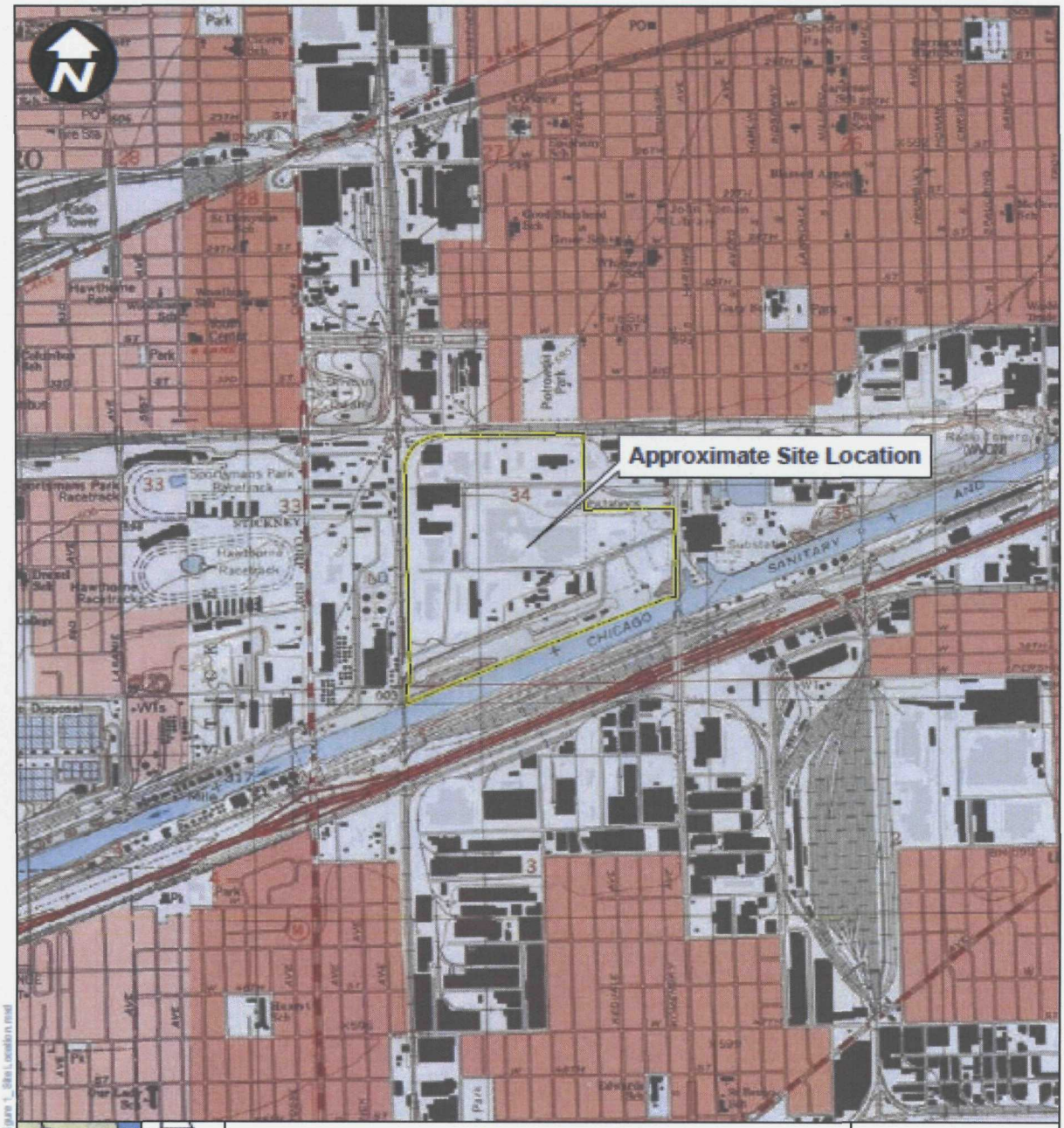
ADMINISTRATIVE RECORD
FOR
CRAWFORD STATION MGP SITE
CHICAGO, COOK COUNTY, ILLINOIS

ORIGINAL
OCTOBER 4, 2011

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	07/00/01	Burns & McDonnell	The Peoples Gas Light and Coke Company	Site Investigation Report for the Former Crawford Station Manufactured Gas Plant Properties A & B (XTRA Intermodal)	
2	06/00/02	Burns & McDonnell	The Peoples Gas Light and Coke Company	Site Investigation Report for the Former Crawford Station Manufactured Gas Plant Property O	
3	00/00/00	del Rosario, R., U.S. EPA	Karl, R., U.S. EPA	Action Memorandum: Determination of Threat to Public Health or Welfare at the Crawford Station MGP Site **(PENDING)**	

Attachment 2

Site Location/Map (Figs. 1 & 2)



Site Location

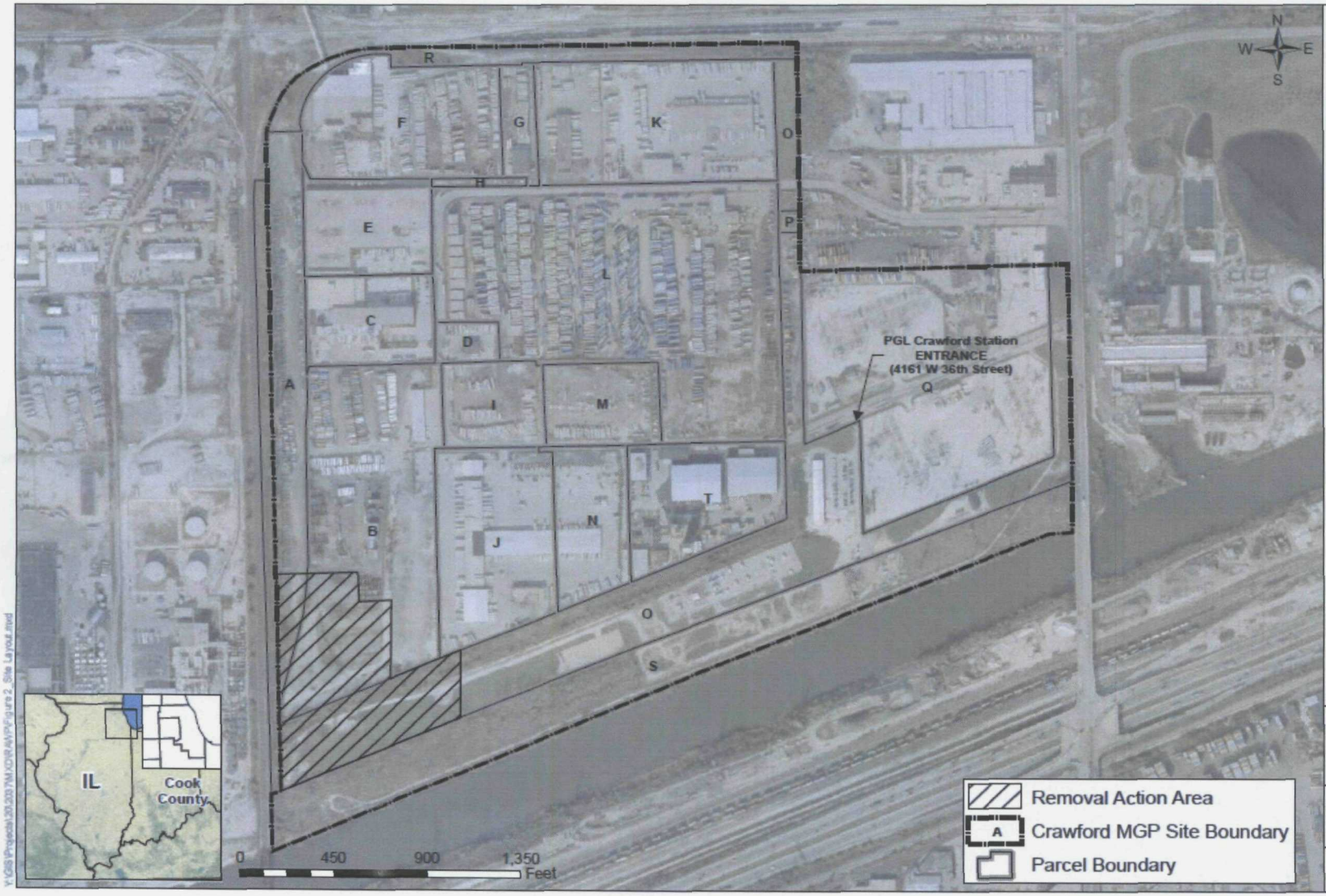
Crawford Station MGP Site
3500 South Pulaski Road
Chicago, Illinois

0 0.25 0.5 0.75 1 Miles

Natural Resource Technology

Project No. 2037
Issued date: 7/13/2011

Figure No. 1



Site Features

Removal Action Work Plan
Crawford Station MGP Site
Chicago, IL

Natural Resource Technology

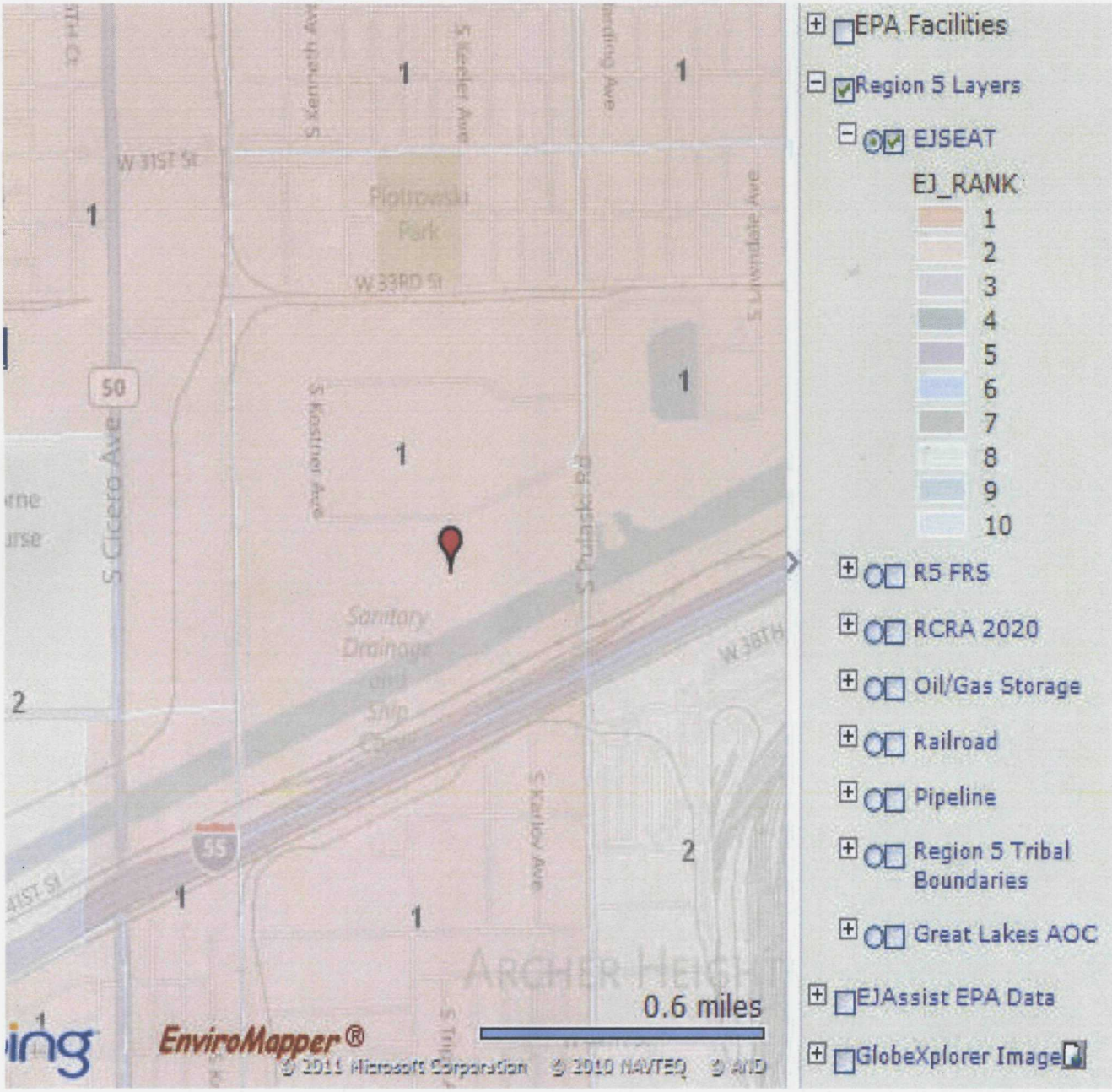
Project No. 2037
Issued date: 8/1/2011

Figure No. 2

Y:\GIS\Projects\2037NUCR\MXD\PDF\Figure 2_Site Layout.mxd

Attachment 3

Crawford Station MGP Site Map Showing EJ SEAT Values For Surrounding Area



Attachment 4

Soil Sampling Result from 2001 Site Investigation
Note: Exceedances of TACO Tier 1 Screening Levels are in bold

Table 11 (Continued)
Soil Ingestion Exposure Route (0-3' Below Ground Surface)
Industrial/Commercial--Tier I Screening
Crawford Station Properties A & B

Compound/Analyte	Tier I Screening Level	Sample Location and Depth (ft.bgs)/Concentration				
		SP001-001 3"-6"	SP002-001 0-1'	SP003-001 2'-3'	SP004-001 0-3"	SP005-001 0-1'
		WT~6' bgs	WT~6' bgs	WT~6' bgs	WT~6' bgs	WT~6' bgs
TCL SVOCs , continued (mg/kg)						
Dimethyl phthalate	—	0.330 U	50.0 U	50.0 U	50.0 U	0.330 U
2,4-Dinitrotoluene*	8.4	0.330 U	50.0 U	50.0 U	50.0 U	0.330 U
2,6-Dinitrotoluene*	8.4	0.330 U	50.0 U	50.0 U	50.0 U	0.330 U
Di-n-octyl phthalate	41,000	0.330 U	50.0 U	50.0 U	50.0 U	0.330 U
Hexachlorobenzene*	4	0.330 U	50.0 U	50.0 U	50.0 U	0.330 U
Hexachlorobutadiene	—	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
Hexachlorocyclopentadiene	14,000	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
Hexachloroethane	2,000	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
Isophorone	410,000	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
2-Methylnaphthalene	—	0.665	1,150 J	3,950 J	82.4 J	4.16
2-Nitroaniline	—	1.6 U	50.0 U	50.0 U	50.0 U	1.60 U
3-Nitroaniline	—	1.6 U	50.0 U	50.0 U	50.0 U	1.60 U
4-Nitroaniline	—	1.6 U	50.0 U	50.0 U	50.0 U	1.60 U
Nitrobenzene	1,000	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
N-Nitrosodimethylamine	—	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
N-nitrosodi-n-propylamine*	0.8	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
N-nitrosodiphenylamine	1,200	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
1,2,4-Trichlorobenzene	20,000	0.33 U	50.0 U	50.0 U	50.0 U	0.330 U
Acenaphthene	120,000	0.33 U	138 J	421 J	50.0 U	1.53
Acenaphthylene	—	0.856	1,560 J	5,180 J	244 J	19.9
Anthracene	610,000	0.552	1,490 J	4,010 J	343 J	15.7
Benzo(a)anthracene	8	2.84	1,960 J	4,140 J	997 J	51.2
Benzo(b)fluoranthene	8	1.70	1,190 J	2,170 J	248 J	27.8
Benzo(k)fluoranthene	78	1.31	978 J	1,900 J	331 J	23.4
Benzo(g,h,i)perylene	—	0.626	166 J	311 J	71.4 J	2.290
Benzo(a)pyrene	0.8	1.49	895 J	1,660 J	285 J	25.6
Chrysene	780	2.72	1,820 J	3,490 J	527 J	43.4
Dibenzo(a,h)anthracene*	0.8	0.33 U	95.5 U	184 J	50.0 U	0.694
Fluoranthene	82,000	3.59	4,530 J	9,500 J	1,120 J	68.6
Fluorene	82,000	0.33 U	1,830 J	6,020 J	333 J	9.51
Indeno(1,2,3-cd)pyrene	8	0.555	215 J	381 J	89.1 J	1.57
Naphthalene	82,000	1.53	4,980 J	22,400 J	177 J	3.67
Phenanthrene	—	2.34	5,780 J	13,800 J	1,020 J	49.7
Pyrene	61,000	3.32	2,970 J	6,200 J	789 J	64.2
Priority Pollutant Metals and Total Cyanide (mg/kg)						
Antimony	820	14 U	12 U	14 U	14 U	14 U
Arsenic	3	4.3	5.8	19	13	17
Beryllium	1	1	0.47	1.1	0.94	1.1
Cadmium	2,000	1 U	1 U	1 U	14	2.4
Chromium	10,000	6.6	3	5.3	14	54
Copper	82,000	48	22	65	200	65
Lead	400	100	21	480	180	89
Mercury	610	1.3	0.21	5.8	0.99	1.2
Nickel	41,000	22	18	30	16	43
Selenium	10,000	3.4	2.1	5.6	4.1	6.3
Silver	10,000	2 U	2 U	2 U	2.3 U	2.4 U
Thallium	160	2 U	2 U	2 U	2 U	2 U
Zinc	610,000	140	19	160	200	130
Total Cyanide	41,000	0.50 U	4.01	2.5 U	7.9	66.9

Notes:

(1) U - Indicates compound/analyte was analyzed for but not detected, the associated value is the sample reporting limit.

(2) J - Indicates an estimated value.

(3) WT~n' bgs - Water table is approximately (n) feet below ground surface.

(4) Shaded values exceed Tier 1 screening levels.

(5) — Toxicity criteria not available for ingestion exposure route (Illinois EPA 2001).

(6) bgs-below ground surface

(7) * Non-detect value exceeds TACO Tier 1 level for compound. Non-detect values are not highlighted.

(8) NA – Not Analyzed

ATTACHMENT 2

REMOVAL ACTION WORK PLAN ADDENDUM 2.1 REVISION 1
PARCELS G AND V

PEOPLES GAS®
NATURAL GAS DELIVERY

Peoples Gas
200 East Randolph Street
Chicago, IL 60601
www.peoplesgasdelivery.com

November 2, 2021

Ms. Lauren Bumba
Remedial Project Manager
United States Environmental Protection Agency
77 Jackson Blvd.
Chicago, IL 60604

RE: Response to Comments & Transmittal of Removal Action Work Plan Addendum 2.1 Revision 1 – Parcels G and V
Time-Critical Removal Action
Crawford Station Former Manufactured Gas Plant Site
The Peoples Gas Light and Coke Company
CERCLA Docket No. V-W-08-C-917
CERCLIS ID – ILN0000510192

Dear Ms. Bumba:

This letter provides the Peoples Gas Light and Coke Company's (PGL's) responses to select United States Environmental Protection Agency (USEPA) comments issued October 29, 2021, on the Removal Action Work Plan (RAWP) Addendum 2.1 (Add. 2.1) for Former Crawford Station Manufactured Gas Plant (MGP) Site. In addition, Finalized RAWP Add. 2.1 Revision 1 is also attached.

For reference, PGL submitted an *Expanded Removal Action Area Notification – Parcels G and V – Revision 1* dated February 4, 2019, which was subsequently approved by United States Environmental Protection Agency (USEPA) on February 6, 2019. An *Alternative Removal Action Technology – Parcels G and V* letter submitted on July 29, 2020, proposing In Situ Stabilization (ISS) to address impacts on Parcels G and V, which was approved by USEPA on July 31, 2020. PGL submitted RAWP Add. 2 on December 31, 2020, outlining the ISS approach and the pre-design investigation. USEPA provided comments on March 5, 2021. Responses to the March 5, 2021 comments were included as part of RAWP Add. 2.1, submitted to USEPA on August 6, 2021.

For ease of review, USEPA's October 29, 2021, comments are formatted in italics, followed by PGL's response.

USEPA Comment 1: *This response is acceptable. EPA and Illinois EPA thank PGL for its continued outreach efforts.*

PGL's Response: This comment requires no further action.

USEPA Comment 2: *PGL's response regarding site groundwater is satisfactory. However, vapor intrusion is not discussed in Section 2.2 or within the report. A reevaluation of the groundwater and vapor intrusion pathways is requested as part of the remedial investigation (RI) process following completion of this removal action.*

PGL's Response: Following the completion of the removal action, PGL will reevaluate the groundwater and vapor intrusion pathways incorporating data collected as part of this removal action.

USEPA Comment 3: *It appears the Bullet 3 text "…and avoid future remediation below or immediately surround the removal areas" was removed in Add. 2.1. Was this change made to be consistent with the RI/FS (Feasibility Study)-related comment/response below?*

PGL's Response: Following Parcel G and V remediation, the parcels will be reevaluated as part of the RI/FS.

Agencies' Evaluation of Response: *Please clarify – should the above response state "Following Parcel G and V removal/ISS" instead of remediation? If so, please revise. As noted above, the Agencies agree that these parcels should be reevaluated following the completion of the removal action.*

PGL's Response: The response should have stated "Following Parcel G and V removal/ISS". The statement has been updated in the finalized RAWP Add. 2.1 Revision 1 stating parcels will be reevaluated following the removal action as part of the RI process.

USEPA Comment 4: *Section 3.2 of RAWP Add. 2.1 does provide some information in response to the original comment, i.e. that this upcoming removal is consistent with previous removal actions onsite. However, the full extent of residual contamination (post-removal action) will need to be defined and incorporated into the upland risk assessment and RI.*

PGL's Response: The full extent of residual contamination (post-removal action) will be defined and incorporated into the upland risk assessment and RI.

USEPA Comment 5: *Updates made to Section 4.5 are acceptable.*

PGL's Response: This comment requires no further action.

USEPA Comment 6: *Response is acceptable. A variety of alternate mixtures are included in RAWP Add. 2.1. The State notes that per August 27, 2021, correspondence with you, a Beneficial Use Determination (BUD) notification has not yet been submitted to Illinois EPA's Disposal Alternatives Unit (DAU). Please provide an update on when any notification(s) might have been sent to Illinois EPA.*

PGL's Response: Following recent USEPA conditional approval, an ISS Subcontractor will be selected for the project, at which point a BUD notification will be submitted to the DAU.

Peoples Gas acknowledges the letter received on October 29, 2021 also serves as conditional approval of the RAWP Add. 2.1.

Should you have any questions regarding the content of this plan or wish to discuss this matter further, please do not hesitate to contact me at (312) 240-7634 or patrick.kenny@wecenergygroup.com.

Regards,

Patrick F. Kenny
Senior Environmental Consultant – Environmental

Enclosures: Remedial Action Work Plan Addendum 2.1 Revision 1

For distribution to: Mr. Christopher Peters, Illinois EPA (2 hard copies via US Mail and email)
Mr. David Klatt, Jacobs (via email)
Ms. Emily Meyer, Burns & McDonnell (via email)
Ms. Tracy Hofmann, Ramboll (via email)

Removal Action Work Plan
Addendum 2.1

The Peoples Gas Light and Coke Company

Crawford Station Former MGP Site
Parcels G & V In Situ Stabilization
Project No. 128619

Revision 1

11/2/2021

Removal Action Work Plan Addendum 2.1

prepared for

The Peoples Gas Light and Coke Company
Crawford Station Former MGP Site
Parcels G & V In Situ Stabilization
Chicago, Illinois

Project No. 128619

Revision 1

11/2/2021

prepared by

Burns & McDonnell Engineering Company, Inc.
Downers Grove, Illinois

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LIST OF ABBREVIATIONS

BaP-TEQs	benzo(a)pyrene toxicity equivalent quotients
bgs	below ground surface
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CCD	City of Chicago datum
cm/s	centimeters per second
CQA	construction quality assurance
DNAPL	dense non-aqueous phase liquid
GGBFS	ground granulated blast furnace slag
IEPA	Illinois Environmental Protection Agency
ISS	in situ stabilization
ITRC	Interstate Technology & Regulatory Council
LKD	lime kiln dust
mg/kg	milligrams per kilogram
MGP	manufactured gas plant
MWRD	Metropolitan Water Reclamation District of Greater Chicago
NAPL	non-aqueous phase liquid
NPDES	National Pollution Discharge Elimination System
PAH	polycyclic aromatic hydrocarbon
PDI	pre-design investigation
PGL	The Peoples Gas Light and Coke Company
psi	pounds per square inch
RAWP	Removal Action Work Plan
RI	Remedial Investigation
RSL	regional screening level
SOW	Scope of Work
SSHSP	Site-Specific Health and Safety Plan
SWPPP	Storm Water Pollution Prevention Plan
TACO	Tiered Approach to Corrective Action Objectives

TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time-Critical Removal Action
TPH	total petroleum hydrocarbon
UCS	unconfined compressive strength
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WEC	WEC Energy Group, Inc.

1.0 INTRODUCTION

1.1 Overview

This document serves as Addendum 2.1 to the *Removal Action Work Plan (RAWP) Revision 1,* dated September 6, 2011, and details the design and implementation of In Situ Stabilization (ISS) to be conducted on Parcels G & V at the Crawford Station Former Manufactured Gas Plant (MGP) site (Site) in Chicago, Illinois. Figure 1 presents the Site location.

The Peoples Gas Light and Coke Company (PGL), a subsidiary of WEC Energy Group, Inc. (WEC), owned the former MGP. The Site is being managed under a Multi-Site Framework within the United States Environmental Protection Agency (USEPA) Superfund Alternative program to expedite Site characterization and source remediation. The proposed scope of work (SOW) will be performed as an element of the ongoing Superfund Time-Critical Removal Action (TCRA) being conducted under a 2011 Administrative Settlement Agreement and Order on Consent for Removal Action (Settlement Agreement), Docket No. V-W-11-C-981, executed with the USEPA, as amended from 2012 through 2016 to expand the area covered by the Settlement Agreement. On February 21, 2019, the Settlement Agreement was further modified to expand the TCRA area to include Parcels G & V (USEPA 2019). The USEPA provided approval of an alternate removal action technology TCRA approach to allow the use of ISS in addition to excavation and off-site disposal to address source material on Parcels G & V on July 31, 2020 (USEPA 2020).

TCRA activities have been implemented at several parcels at the Site pursuant to the RAWP approved by USEPA in September 2011. Soils impacted by historical MGP processes have been identified within the approximately 7-acre area of Parcels G & V. A previous report, *RAWP Addendum 2* (Burns & McDonnell, 2020), was a preliminary report to establish the preliminary work for design of the ISS. This *RAWP Addendum 2.1* has been prepared to address MGP process source material and residual impacts on Parcels G & V. This plan will detail results of the pre-design investigation (PDI) and treatability study; provide the details for implementing the TCRA using ISS; the activities to be conducted for implementation of the ISS TCRA; state and local requirements; construction quality assurance (CQA) measures; and a construction schedule. The *RAWP Addendum 2.1* will specify the design criteria and parameters.

1.2 Project Background Information

Regulatory Contact:	**USEPA Region V** **William Murray, Project Manager** **77 West Jackson Boulevard** **Chicago, IL 60604**
Project Contract:	PGL Patrick Kenny, Senior Environmental Consultant 200 East Randolph Drive, 23rd Floor Chicago, IL 60601 (312) 240-7634
Site Name:	Former Crawford Station MGP Site
Site Location:	4358 West 35th Place, Chicago, IL Section 34, Township 39 North, Range 13 East in Chicago, Cook County, Illinois (Figure 1)
Location of Removal Action Area:	Latitude: 41.8311298° Longitude: -87.7343237°
EPA ID #:	ILN000510192
EPA Registry ID:	110030434331
Environmental Consultant:	Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) 1431 Opus Place, Suite 400 Downers Grove, IL 60515
Burns & McDonnell Project Contact:	Emily Meyer, PE, PMP Project Manager (773) 720-2642

1.3 Site History

See RAWP Rev. 1, Section 1.3, page 3 for the MGP history of the Site. Parcels G & V historically had no active MGP operations; however, MGP-impacted soils appear to have been placed on Parcels G & V as surface fill throughout the historical operations of the MGP.

Following the decommissioning of the Crawford MGP, Parcels G & V were leased by others and used mainly for parking and maintenance of truck trailers. In the 1990s, a slab-on-grade building was constructed on the southeast corner of Parcel G that included a maintenance garage. This building was demolished in December 2020.

1.4 Site Description

See RAWP Rev. 1, Section 1.4, page 3 for a description of the Crawford Station Former MGP site. Parcels G & V comprise approximately 7 acres in the northwestern portion of the Site, accessible from West 35th Place (private roadway). Parcel G is irregular in shape and located on the eastern portion of the Site with dimensions of approximately 620 feet north-south by 185 feet east-west. Parcel V is west of Parcel G, polygonal in configuration with primary dimensions of approximately 375 feet east-west and 470 to 585 feet north-south. The Site is generally flat; however, Parcel V is approximately one foot higher with an elevation of 20-21 feet above City of Chicago datum (CCD) than Parcel G with an elevation of 19-20 feet above CCD.

In December 2020, the warehouse building on Parcel G was razed by PGL in preparation for TCRA activities. All public utilities servicing the building including water, electric, gas, communication, and sanitary sewer were removed prior to demolition. Approximately 480 linear feet of sub-grade sheet pile is located along the eastern boundary of Parcel G, and approximately 300 linear feet of sub-grade sheet pile is located along the southern boundaries of Parcels G & V where they abut West 35th Place. The sheet pile walls were installed as part of previous removal actions on West 35th Place in 2020 (to the south) and Parcel K in 2016 and 2017 (to the east).

An east-west oriented railroad spur resides on Parcel R and borders Parcels G & V to the north en route to the BWAY Corporation facility located on Parcel F to the west of G & V. Trucking logistical services firm LaGrou occupies Parcel E to the southwest of G & V. Parcel L, located south of Parcels G & V, is currently used as a logistics center for PGL. Figure 2 shows the Parcels G & V layout. Figure 3 shows surrounding properties around Parcels G & V. Figure 4 shows historical MGP structures around Parcels G & V and in the surrounding areas of the Site.

1.5 Previous Investigations

Site investigation activities have been completed at Parcels G & V as part of the ongoing Remedial Investigation (RI) of the Site to determine the nature and extent of contamination in soil, groundwater, and soil vapor. Soil borings, test pits, soil vapor probes and groundwater monitoring wells were completed and sampled on Parcels G & V from January 2016 through September 2020. The methods and findings of the RI activities at Parcels G & V were reported along with those of the other parcels composing the Site in the RI Report submitted to the USEPA in December 2020 (Ramboll U.S. Corporation, 2020). The methods and findings of historical investigation activities at the Site, including pre-RI investigations, are compiled in Section 5 of the *Completion Report* (Natural Resource Technology

2011). Soil boring logs, test pit observations, and soil analytical tables from the RI activities at Parcels G & V are included in Appendix A (Ramboll U.S. Corporation, 2020).

1.6 Prior Removal Activities

Prior Superfund Removal Program activities have been conducted on various portions of the Site, including Parcels A, B, D, I, K, L, M, and O, as TCRAs. The TCRAs were performed in general accordance with *RAWP Revision 1,* dated September 6, 2011.

In 2020 a TCRA was conducted in the West 35th Place right-of-way to the south of Parcels G & V. An area of approximately 20 feet by 33 feet of Parcel G extends into the West 35th Place roadway that was included in the 2020 TCRA. The 2020 TCRA included removal of impacted soils to depths of 14 to 16 feet below ground surface (bgs). Approximately 400 linear feet of sealed-joint sheet pile (i.e., joints injected with Adeka™ sealant) were advanced to support the West 35th Place excavations along the shared boundary of Parcels G, V and K and West 35th Place. The sheet pile was advanced to approximately 26 feet bgs. This is the only known removal action to have occurred on Parcels G & V.

Parcel K, located directly to the east of Parcels G & V, underwent a TCRA in 2016 and 2017. At that time, approximately 480 linear feet of sheet pile constructed with sealed joints were advanced to support excavations up to 14 feet bgs along the Parcel K - Parcel G boundary. The sheet pile was advanced to approximately 25 feet bgs. As a result of the TCRA on Parcel K, no known MGP impacts are located on Parcel K adjacent to Parcel G within the bounds of the sheet pile wall.

2.0 SUMMARY OF SITE CONDITIONS

2.1 Pre-Design Investigation

A PDI was conducted to facilitate completion of an optimized ISS TCRA design at Parcels G & V to reduce schedule and cost, and define MGP source and residuals zones that should be treated, as well as zones that should not be treated, and allow appropriate focus on the presence of free-phase non-aqueous phase liquid (NAPL) which can impact the efficiency of ISS. The following sections describe the PDI activities that were completed.

2.1.1 Topographic Survey

A topographic survey was completed by WT Group, LLC from Hoffman Estates, Illinois to mark property boundaries and identify streets, rights-of-way, structures, driveway entrances and easements, above- and below-ground utilities, site features and topography of the study area using appropriate horizontal and vertical datums. Field work for the topographic survey was completed on December 21-23, 2020. A plat of survey was developed to be used as the base drawing for ISS design. The plat of survey drawing can be seen as Appendix B.

2.1.2 Geotechnical Soil Borings

A geotechnical soil boring investigation was completed by Wang Engineering, Inc. from Lombard, Illinois for the collection of soil samples for geotechnical and treatability study analyses. The investigation involved advancing five soil borings to 25 feet bgs. The investigation took place over one day on December 21, 2020. Samples for the treatability study were also collected from the auger cuttings of the geotechnical soil boring investigation. The Geotechnical Report, which contains the methodology of the investigation, location of samples, field observations, lab tests and conclusions, is included as Appendix C.

2.1.3 Electrical Resistivity Study

An electrical resistivity (ER) survey was completed by Aestus, LLC from Loveland, Colorado to develop ultra-high-density subsurface imaging for the subsurface of Parcels G & V. The imaging helped identify:

- The distribution of NAPLs, source areas with relatively high contaminant and/or NAPL concentrations, and related dissolved phase contamination;
- Preferential contaminant flow pathways, if any; and
- The magnitude of subsurface obstructions and/or lack of accessibility that may affect ISS design.

The field investigation took place from January 4 to January 13, 2021. The results of the ER study informed many of the locations of the follow-up PDI environmental borings investigation (see Section 2.1.4).

Following the completion of the environmental borings, result from that investigation were used to calibrate the conceptual model developed via the combination of ER data, environmental boring data, and historical soil and groundwater data. By combining the analytical and visual data from intrusive activities with the resistivity data that was collected across the entire site, a more accurate treatment map was developed. Appendix D contains the final ER report.

2.1.4 Environmental Soil Borings

Twenty-one soil borings were advanced on Parcels G & V by Mateco Drilling Corp. from Rockford, Michigan from March 15 to March 19, 2021, to confirm the results of the ER survey and further characterize the nature and distribution of contamination (i.e., delineation of MGP source or residuals material). Direct Push Technology (DPT) equipment was used to advance 19 of the borings for soil sample collection for laboratory analysis, and two borings were completed as Membrane Interface Probe (MIP)/Hydraulic Profiling Tool (HPT) borings to determine subsurface zones that may be impacted by dissolved phase MGP constituents. Due to the tailing of impacts detected by the instrument attributed to MGP impacts remaining on the MIP/HTP membrane surface longer than petroleum-based impacts, confirmed by collocated direct push drilling with continuous sampling, MIP/HPT was not used as initially anticipated during this investigation. Thirty-six soil samples were collected and submitted to STAT Analysis Corporation in Chicago, Illinois. Of these 36 samples submitted, 29 were analyzed. The following parameter was analyzed for:

- Total Petroleum Hydrocarbons (TPH) (Method 8015)

The laboratory reports from soil sample analyses, analytical results from soil samples and processed graphs from MIP/HPT are included in Appendix E.

2.2 Site Geology and Hydrogeology

Based on site investigation activities, site geology was characterized through the completion of 28 soil borings and eight test pits during the RI and 21 soil borings during the PDI. The materials identified at the Site consist of fill material and underlying native clay. Soil boring logs and test pit observation notes describing the subsurface materials encountered at Parcels G & V during the RI are presented in Appendix A. The identified soils are summarized as follows:

- Fill Unit – Fill is present throughout Parcels G & V. Near the ground surface the fill generally consists of 0 to 15 inches of asphalt grindings/stone aggregate underlain by 4 to 24 inches of CA-6 gravel (coarse to fine). Beneath the asphalt grindings and gravel layer, the fill consists mostly of clay with smaller amounts of silt, sand, gravel, and fragments of bricks, cinders, concrete, coal, glass, and wood. The fill ranges in thickness from 5 to 10 feet, averaging 7 feet on Parcels G & V.
- Silty Clay Unit – A brown/gray and gray silty clay unit underlies the fill throughout Parcels G & V. This unit is a medium to stiff silty clay with a trace to some sand and gravel embedded. Orange and brown mottling is sporadically observed in the uppermost portions of the clay. The upper portion of the silty clay unit is frequently observed to contain syneresis cracks, developed as clay minerals desiccate and shrink above the water table. Both infiltrating water and dense non-aqueous phase liquid (DNAPL) have been directly observed in these cracks during excavation activities on nearby parcels. The silty clay unit was encountered at depths ranging from 5 to more than 17 feet bgs, and soil borings often terminated in this unit without defining its vertical extent.

The fill unit functions as the main water-bearing unit at the Site, and groundwater is found perched in the fill material above the native clay. In the absence of obstructions, groundwater flow on Parcels G & V is generally towards the south-southwest as shown in the RI Report (Ramboll, 2020). However, groundwater flow in this area of the Site is heavily influenced by aggregate backfill and sealed-joint sheet pile earth retention systems remaining in the ground from prior TCRA activities completed on Parcel K (east of Parcels G & V), Parcel H, Parcel L and 35th Place (generally south of Parcels G & V). While the presence of aggregate backfill and sheet pile earth retention systems may affect groundwater flow directions on a very localized basis (i.e., parcel scale), based on groundwater contour maps in the RI Report developed with groundwater elevation data after the installation of the sheet pile systems, the groundwater flow direction is still expected to be towards the south.

2.3 Utilities and Site Constraints

2.3.1 Existing Utilities

There are four known active utilities onsite:

- a 1-foot by 1-foot communication duct pack approximately 2.5 feet bgs approximately two feet north of the northern curb line parallel to West 35th Place,

- a 12-inch diameter vitrified clay sanitary sewer main approximately 10 feet bgs approximately 4 feet south of the curb in the portion of Parcel G that occupies West 35th Place,
- a 60-inch diameter reinforced concrete storm sewer main approximately 8 feet bgs approximately 19 feet south of the curb in the portion of Parcel G that occupies West 35th Place; and
- overhead electrical lines approximately 30 feet above grade within 15 feet of the northern property line, as shown on Figure 5.

2.3.2 Site Ownership

PGL owns Parcels G & V.

2.4 Soil Data Compilation and Interpolation

RI boring logs and test pits; field observations; and analytical data were compiled and summarized to evaluate potential source material and delineate removal action areas. These removal areas were refined based on result of the PDI. Data from the RI and the PDI were inputted into the model developed as part of the ER study. Based on the physical data and the model data, more accurate boundaries were able to be developed which refined the treatment volume from previous iterations of the RAWP (Burns & McDonnell, 2020).

Proposed removal action limits were primarily defined based on descriptions of visual NAPL identified as MGP source material as described in Section 3.2. Soil analytical data were used to correlate visual indications of NAPL. The proposed removal action areas were refined to include areas where TPH concentrations exceeded the default value of 2,000 milligrams per kilogram (mg/kg) in accordance with Tiered Approach to Corrective Action Objectives (TACO) regulations for determination of soil attenuation capacity (Illinois TACO: 35 IAC 742, Section 742.215). The physical and analytical data, in concert with the ER readings at known locations where physical data was collected, was used to calibrate the model to known conditions. From there the model was able to delineate the proposed impacts in locations where there was no physical data collected.

Once the model was complete, the treatment areas were drawn such that the treatment area could be well defined in the field using a grid system. The treatment areas were drawn in such a way that all treatment areas were at lease 0.5-foot deeper than the deepest impacts. The final model output can be shown in Appendix D.

The resulting treatment areas are presented in Figure 6. The treatment areas are discussed further in Section 3.4, Removal Action Volume.

2.5 Risk to Public Health, Welfare or the Environment

Based on the site investigation data, conditions at the Site may present an imminent risk to public health, welfare, and the environment when compared to factors in the National Contingency Plan Section 300.415(b)(2). Selected factors that are applicable to this determination include the following:

1. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.
    a. No active operations are conducted in the vicinity of exposed MGP residuals. Typical security measures, including fencing, are employed to limit access to exposure.
    b. A potential exposure risk exists from MGP residuals at or near the ground surface as listed for several samples collected within 2 feet bgs as shown on Table in Appendix A. Subsurface contaminant migration is a potential threat to additional receptors.
2. Elevated levels of hazardous substances or pollutants or contaminants in soils at or near the surface that may migrate.
    a. MGP residuals meeting the classification of source material were identified at or near the ground surface. Several of the analyzed soil samples exhibited concentrations of selected polycyclic aromatic hydrocarbons (PAHs) exceeding USEPA Regional Screening Levels (RSLs), Illinois TACO Soil SLs and/or benzo(a)pyrene toxicity equivalent quotients (BaP-TEQ) criteria, and/or visually exhibited NAPL conditions.

Given the site conditions, the nature of known and suspected hazardous substances, and the potential exposure pathways, actual or threatened releases of hazardous substances, pollutants, or contaminants are evident. Excavation and ISS of MGP source materials will mitigate the direct contact exposure pathway and reduce the potential for migration to soil, groundwater, or surface water.

3.0 BASIS FOR REMOVAL ACTION

3.1 Removal Action Objectives and Strategy

The objectives for the removal action include the following:

1. Immobilize and/or remove identified MGP source material within the defined removal action areas and eliminate MGP residuals at the surface and associated direct contact concerns to the extent practicable.
2. Immobilize and/or remove other materials from Parcels G & V that may be impacted by MGP residuals, but are not considered source material, on a selective basis to support long-term site management within the Multi-Site Framework.

The removal action was developed with the following strategy:

- Select a removal strategy that can be feasibly and economically implemented within a short timeframe.
- Use a planning and design process that addresses MGP source material defined by prior investigations and verified by confirmation sampling prior to completion of TCRA activities.
- Following Parcels G & V removal action, the parcels will be reevaluated as part of the RI.

The selected removal action strategy includes a shallow soil excavation, landfill disposal, and ISS. In the event that obvious non-MGP contamination is evident during the removal action (e.g., buried drums, previously unidentified underground storage tanks, or other types of impacts that are visually distinct from the MGP source material) appropriate procedures will be employed to address the contamination in accordance with federal, state, and local requirements. As appropriate, the USEPA Regulatory Contact will be promptly notified. If the type of contamination encountered is not consistent with site investigation data or the site waste profile, supplemental sampling and waste characterization may be performed to ensure proper management, handling, and/or disposal of the material.

3.2 MGP Source Material Definitions

As a TCRA, the proposed work is proceeding in parallel with the approval of the RI, which includes a quantitative risk assessment. To accomplish project objectives, the removal action relies on investigative visual assessment methods supplemented with soil sampling and analysis. This is consistent with USEPA-approved approaches at other sites in Region 5, including the TCRA at Site Parcels A, B, D, I, K,

L, M, and O. The removal action at the Site is being performed in general accordance with *RAWP Revision 1,* dated September 6, 2011.

Soils are defined as MGP source material if they exhibit TPH concentrations above 2,000 mg/kg, or other calculated site-specific value, in accordance with Illinois TACO regulations for determination of soil attenuation capacity (Illinois TACO: 35 IAC 742, Section 742.215). Additionally, soils are source material if they exceed the soil saturation limit for selected COPCs as listed in *RAWP Rev* 1. Soils exhibiting visible MGP residual material as described below is also defined as MGP source material.

Table 1: MGP Source Material Description

Descriptive Term	Soil boring log descriptions from prior investigation work	Definition
Oil Wetted	Tar saturated Free product	Visible brown or black oil wetting the soil sample. Oil appears as a liquid and is not held by soil grains.
Oil Coated	Tar coated, Oily, Hard tar	Visible brown or black oil coating soil particles. Typically associated with coarse-grained soil such as coarse sand, gravel, and cobbles.

Source: Multi-Site Field Sampling Plan, SOP SAS-05-02, Integrys 2008a.

Areas exhibiting lesser degrees of NAPL that do not meet the source definition (e.g., tar or oil staining in clay fractures) are not considered MGP source material.

3.3 Removal Action Decision Criteria

The following decision criteria will be applied to the removal action:

- Removal of MGP source material from approximately 0 to approximately 6 feet bgs to allow for expansion of soils during ISS treatment.
- Remove swell material within 4 feet of final grade and replace with granular backfill to allow for a clean barrier of at least 4 feet within the TCRA footprint to mitigate the direct contact exposure pathway, protect the monolith from surface activities, and allow for site redevelopment.
- ISS of MGP source material beyond approximately 4 feet bgs to support long-term site management within the Multi-Site Framework and avoid future remediation below or immediately surrounding the removal action areas. Based on available data, the greatest planned depth of the ISS treatment is currently approximated at 21 feet bgs.

- Isolated soil treatment areas shallower than 10 feet may be removed using excavation, disposal and backfill with clean granular backfill.

Following shallow soil excavation, MGP source material within the delineated removal action areas will be solidified by ISS. Completed ISS areas will be sampled for verification that specifications and design parameters are achieved. CQA details are described in Chapters 4 and 6.

3.4 Removal Action Volume

Based on the initial site investigation data, preliminary areas to be addressed by the TCRA are presented in Figure 6 and include excavations/ISS treatments to 7 feet bgs, 12 feet bgs, 16 feet bgs, and 21 feet bgs. The majority of the treatment area is on the eastern and southern portions of Parcels G&V, as confirmed during the PDI. Another isolated 7-foot treatment area was determined based on an analytical source exceedance collected during the PDI, and is shown in the western portion of Parcels G&V. In total, the volume to be addressed by the TCRA is approximately 108,000 cubic yards.

3.5 ISS Treatability Study

A bench scale/treatability study was conducted following the geotechnical drilling. Objectives for the study include the following:

- Develop an ISS mix design capable of stabilizing/solidifying MGP source material and MGP residuals and designed to enhance protection of human health and the environment.
- Develop an economical mix design for implementing ISS using locally available reagents.
- Assess the physical and chemical properties of stabilized/solidified materials.
- Assess the volumetric expansion associated with ISS.
- Demonstrate the solidified monolith will provide suitable geotechnical conditions for future property development.
- Demonstrate the solidified monolith will show a reduction in contaminant flux following solidification.

3.5.1 ISS Design Goals

Design goals were developed with reference to the USEPA's *Technology Performance Review: Selecting and Using Solidification/Stabilization Treatment for Site Remediation* (EPA/600/R-09/148 November 2009) and Interstate Technology & Regulatory Council's (ITRC) Technical/Regulatory Guidance

Development of Performance Specifications for Solidification/ Stabilization, prepared by the ITRC Solidification/Stabilization Team in July 2011. The methodology for evaluating the physical design goals is based on appropriate ASTM standards or qualitative analysis.

Physical and chemical ISS design goals for the treatability study include testing for the following parameters:

- Unconfined compressive strength (UCS) (ASTM D2166): >50 pounds per square inch (psi) with no sample < 40 psi
- Hydraulic Conductivity (ASTM D5084): < 1 x 10^{-6} centimeters per second (cm/s)

Full-scale ISS implementation will create a stable and relatively impermeable monolith by homogenizing the subsurface material and eliminating intermittent and continuous higher permeability seams within the clay that have acted as transport mechanisms for the MGP impacts. The established design goal of 1 x 10^{-6} cm/s will minimize the flow of groundwater through the monolith and reduce leaching of contaminants from the stabilized/solidified source material. Achieving the UCS and hydraulic conductivity performance criteria will see that the long-term performance of the ISS at Parcels G & V is sustained.

Leach testing of samples of the solidified soil have commenced using USEPA SW-846 Modified LEAF Method 1315 for volatile organic compounds (VOCs) and PAHs to facilitate development of a design mix that mitigates the potential for unacceptable levels of chemical leaching to groundwater.

3.5.2 Design and Summary of ISS Treatability Study

See Appendix F for the Treatability Study Report, and relevant results are presented in Section 3.5.3 below, as available. The treatability study tested material from both Parcels G and V in mixtures with Portland cement and other additives to observe performance against the performance criteria of the site. The testing showed that the material at the site was difficult to fully homogenize at 100% water addition, and that at 150% water addition the performance of the stabilized mixture against the performance criteria was not impacted while the workability of the mixture improved.

Appendix G contains the bulking calculations summary table which provides an estimate of the amount of volumetric expansion expected from each of the mix designs. On average across the various mixes, the volumetric expansion was 0.34.

Results for Modified LEAF Method 1315 testing will be available after submission of RAWP Addendum 2.1.

3.5.3 Basis for ISS Mix Design Selection

Results from the treatability study will be utilized to confirm that ISS can effectively solidify/stabilize the MGP source material and residuals at Parcels G & V. Specifically, the appropriate ISS mix designs will be determined that demonstrate achievement of the ISS performance criteria of UCS greater than 50 psi and hydraulic conductivity less than 1 x 10^{-6} cm/s. A mix design that is designed to achieve these physical parameters can meet the removal action objectives for MGP-impacted soil discussed in Section 3.1.

The mix designs from the treatability study that achieved both the UCS and hydraulic conductivity performance criteria are summarized below:

- 5.0% Type I/II Portland Cement, 100% water by weight
- 10.0% Type I/II Portland Cement, 100% water by weight
- 5.0% Type I/II Portland Cement / 5.0% Grade 120 ground granulated blast furnace slag (GGBFS), 100% water by weight
- 5.0% Type I/II Portland Cement / 7.5% lime kiln dust (LKD), 100% water by weight
- 2.5% Type I/II Portland Cement / 5.0% Grade 120 GGBFS, 100% water by weight
- 7.5% Type I/II Portland Cement, 150% water by weight
- 3.0% Type I/II Portland Cement / 2.0% Grade 120 GGBFS, 150% water by weight
- 5.0% Type I/II Portland Cement / 2.5% Grade 120 GGBFS, 150% water by weight

In addition to these eight mix designs, there were other mix designs which achieved the UCS performance criterion but were not tested for hydraulic conductivity. These mix designs may be considered as well during full-scale implementation if there are issues with other mixes. Additionally, mixes may be adjusted in the field for water addition to minimize the amount of water added to minimize the potential swell.

Results of the leachability testing will be used to evaluate the relative performance of final mix designs in physically sequestering and chemically isolating constituents of concern that are present in soil and/or groundwater. Results from this phase of the treatability study may be used to correlate the leaching performance with UCS and/or hydraulic conductivity for selection of final mix designs to be used in the full-scale ISS CQA testing program. The following mixtures are undergoing LEAF testing for both Parcel G and V. Results are expected after submission of RAWP Addendum 2.1.

- 5.0% Type I/II Portland Cement, 100% water by weight

- 5.0% Type I/II Portland Cement / 5.0% Grade 120 ground granulated blast furnace slag (GGBFS), 100% water by weight
- 7.5% Type I/II Portland Cement, 150% water by weight
- 3.0% Type I/II Portland Cement / 2.0% Grade 120 GGBFS, 150% water by weight
- 5.0% Type I/II Portland Cement / 2.5% Grade 120 GGBFS, 150% water by weight
- 4.0% Type I/II Portland Cement / 1.0% Grade 120 GGBFS / 1.0% LKD, 150% water by weight

Based on the results of the Treatability Study, the mix design with 7.5% Type I/II Portland Cement, 150% water by weight will be utilized for the duration of this RAWP as the selected mix design, however, the mix design could still be optimized during the full-scale implementation.

4.0 REMOVAL ACTION IMPLEMENTATION

4.1 Preliminary Activities

4.1.1 Site Security and Controls

Parcels G & V are secured with an existing chain link fence that surrounds the property. PGL currently maintains two entrances to the site at 4358 W 35th Place, Chicago, IL. The two gates will serve as access and egress points during the removal action. Each gate will be locked when no workers are present. A visual barrier will be added to the existing fence and gates surrounding Parcels G & V.

All visitors will be required to sign a visitor's log when entering and exiting Parcels G & V. Access to removal action areas will be limited to authorized personnel approved by PGL and will be required to participate in a site-specific health and safety briefing by the site supervisor or health and safety officer prior to entry.

4.1.2 Surveying

At a minimum, the following items will be surveyed at Parcels G & V:

- Property boundaries
- Proposed removal action areas
- ISS column/mixing cell locations and top and bottom elevations
- Lateral extents of shallow soil excavations
- Final lateral and vertical surface contours of areas disturbed during construction
- Final site improvements and surface elevations
- Existing and new utilities.

4.2 Site Preparation

Site preparation will include protection, removal, or relocation of utilities if needed, installation of erosion controls, relocation of fences, removal of surface obstructions, clearing and grubbing of vegetation, abandonment of monitoring wells located in removal action areas, construction of a temporary on-site truck access road, and establishment of truck routes. Concrete barricades or steel traffic bearing plates will be placed around or on monitoring wells that will remain, if appropriate. The site preparation plan is included as Figure 7.

4.2.1 Protection of Utilities and Construction Utilities

If utility modifications or protections are necessary, PGL will coordinate with the utility provider. Additionally, coordination with utility providers will occur to facilitate installation of utility services as necessary for construction operations. Construction operations will require, at a minimum, electrical services for office trailers, guard shack, water treatment system, air monitoring equipment, and an ISS batch plant. In addition, the general contractor's site superintendent will be specifically tasked with ensuring all utility conflicts are cleared as construction progresses.

4.2.2 Runoff and Erosion Control

Runoff and erosion control measures will be implemented in accordance with National Pollution Discharge Elimination System (NPDES) Construction General Permit requirements. Prior to beginning site work, the following minimum erosion control activities will be performed:

- Soil erosion controls will be placed around removal action areas or around the site perimeter, as appropriate.
- A tracking pad of open graded stone will be placed at truck entrances/exits to minimize off-site tracking of material from truck tires.
- Material management and decontamination areas will be bermed on all sides to prevent sediment run-off.
- Filter fabric, filter basket, or equivalent will be placed above existing storm sewer catch basins, if any exist on or near Parcels G & V, to prevent sediment from entering state waterways.
- If necessary, additional measures will be taken to prevent run-on of surface water, particularly to prevent surface water contact with removal action areas.
- Street sweeping will be used, as necessary, to promptly remove potentially tracked materials on public rights-of-way.

Installation methods and maintenance procedures for soil erosion and sediment controls will follow best management practices. Trucks, grading equipment, and other construction vehicles will use constructed tracking pads to minimize tracking of soil off site. Erosion control measures will be maintained throughout construction activities until permanent erosion control measures are in place.

The general contractor will be responsible for implementing an adequate erosion control plan and complying with all applicable requirements including conducting site inspections. At a minimum, inspectors will satisfy the following requirements:

- Document the conditions and/or repair of erosion control measures.
- Document sediment accumulation amounts adjacent to fences and/or catch basin filter fabric.
- Evaluate eroded or potentially unstable soils.

Inspections will be made at least weekly and within 24-hours after rainfall events of 0.5 inches or greater, or as directed by construction manager. Maintenance activities may include removal of sediment from fences and/or catch basin filter fabric, and repair as needed. Weekly inspection logs will be maintained at the site.

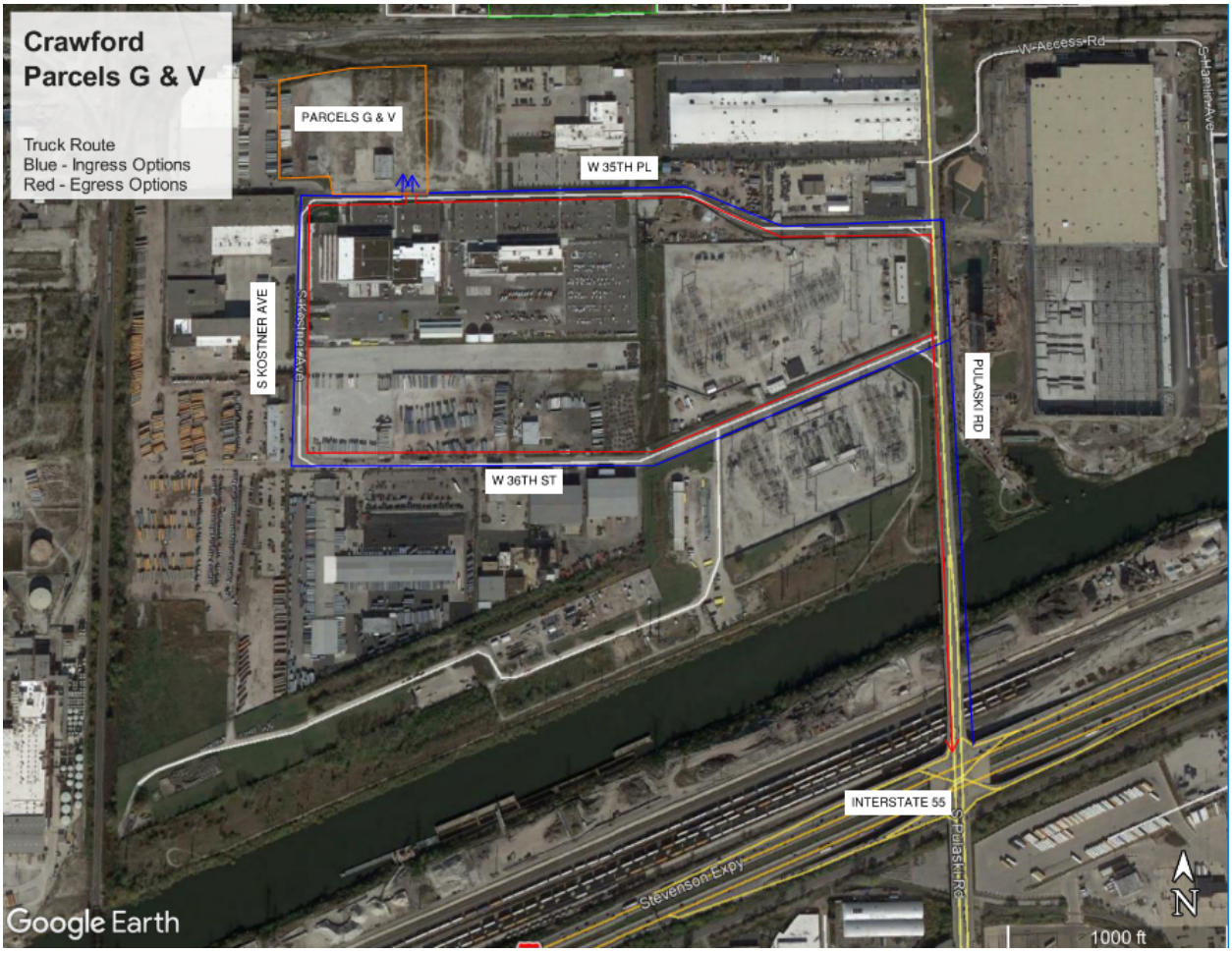
This erosion control plan will be further documented within the Storm Water Pollution Prevention Plan (SWPPP) to be prepared in accordance with the requirements of the NPDES General Permit for construction activities.

4.2.3 Clearing and Grubbing

The majority of the ground cover at Parcels G & V consists of gravel and concrete pavement; however, there are a few areas that will need to be cleared prior to implementation of the removal action. Clearing and grubbing will be performed following placement of temporary erosion control measures and will include the removal of trees, shrubs, stumps, and roots from within the removal action and operational area, as needed. Trees, shrubs, stumps, roots and root balls removed during clearing and grubbing will be transported off site for disposal or chipped and stockpiled on site for potential use during construction.

4.2.4 Route of Ingress and Egress for Construction

Construction ingress and egress points will be established though gates located at the southern property boundaries that open up onto 35th Place. The main route of truck traffic will be from the site east onto 35th Place (private), south onto Pulaski Avenue, and then onto the I-55 expressway. Alternatively, trucks may exit west onto 35th Place (private), south on Kostner Avenue (private), east on 36th Street (private) and then south on Pulaski Avenue. At the gates, appropriate signage will be posted to identify entrances and exits. Soil disposal trucks will be covered and covers will be securely fastened before leaving the site.



Inset 1: Route of ingress and egress for construction

4.2.5 Monitoring Well Abandonment

Currently there are three well pairs within Parcels G & V. Existing monitoring wells within proposed removal action areas will be abandoned prior to construction. Currently only MWG/PG101 is within the sloping of the treatment area and will likely need to be removed. The following wells are near proposed excavation areas and may require abandonment if removal action limits are expanded laterally:

- MWV/PV101 on Parcel V
- MWV/PV102 on Parcel V

If necessary, monitoring wells will be abandoned in accordance with the *Multi-Site Field Sampling Plan Revision 4*, dated September 8, 2008, and in accordance with Title 77: Public Health; Chapter I: Department of Public Health Subchapter R: Water and Sewage Part 920 Illinois Water Well Construction Code; Section 920.120 Abandoned Wells.

4.3 Fugitive Emission Control

Site activities could generate fugitive emissions including vapor, dust, odor, and noise. A standard level of care will be taken to minimize fugitive emissions. Fugitive emission control measures may include the use of plastic sheeting, water, or foam-based vapor suppression agents. Plastic sheeting may be used to provide a physical barrier to fugitive vapor and dust emissions specifically on inactive stockpiles or open excavations. Soil wetting using potable water with or without additives may be sufficient to control fugitive dust emissions from stockpiles, excavated areas, and access roads. A vapor suppression agent (e.g., Rusmar™ Foam or similar) will be applied to open excavations, completed ISS areas, and stockpiles of MGP impacted materials when necessary to mitigate odors. Fugitive emission controls will be applied in accordance with the fugitive emissions management plan (see Appendix H).

4.4 Removal Action Operations

Removal action operations will consist of the following:

- Pre-excavation and excavation
- Management and disposal of excavated materials
- ISS
- Site restoration
- On-site materials management
- Excavation dewatering, if needed
- Equipment decontamination

The following sections provide a discussion of removal action operations. Plans for these activities will be refined during construction planning phase.

4.4.1 Pre-Excavation and Shallow Soil Excavation

Pre-excavation within the removal action areas will be conducted to remove and demolish subsurface structures and surface concrete pads, to excavate shallow soil for construction of an ISS work platform, and to accommodate soil swell generated from ISS treatment. Three main tasks during this phase of the removal action include pre-excavation, shallow soil excavation, and construction of ISS platform.

4.4.1.1 Pre-Excavation

Available historical and recent information for Parcels G & V does not indicate the presence of any subsurface structures with the exception of abandoned utilities and abandoned site drainage structures

(see Figure 5). Pre-excavation may be conducted within removal action areas to depths greater than required for shallow soil removal if any subsurface structures, obstructions, or oversized debris are encountered during the shallow soil removal. All subsurface structures and obstructions are expected to be removed or managed within the removal action areas. Additionally, subsurface structures that extend beyond the removal action limits may be removed depending on contractor and equipment capabilities and structural considerations for surrounding roads and infrastructure, if applicable.

Following debris removal, excavations may be backfilled with the excavated MGP impacted soils within the removal action areas in preparation for ISS construction.

4.4.1.2 Shallow Soil Excavation

Shallow unsaturated (approximately top 6 feet) soils will be removed within the preliminarily delineated removal action areas shown on Figure 6. Where any unexpected structures or construction debris not encountered during pre-excavation require removal, shallow soil excavation will extend as deep as necessary to remove the structures and/or debris.

During shallow soil excavation, soils will be inspected for MGP residuals and transported off site for landfill disposal. If MGP residuals are present on sidewalls of excavations beyond the proposed removal action area, the shallow excavation may be expanded to remove remaining MGP-related materials. Soil excavation will be performed with conventional hydraulic excavators. To the extent practical, excavators will load soil directly from the excavation into conventional quad-axle or semi dump trucks for transport and landfill disposal. Temporary stockpiling of these soils is discouraged but may be necessary. Phasing and work sequencing will be further developed during construction planning efforts.

4.4.1.3 ISS Platform Construction

Following pre-excavation and shallow soil excavation, an ISS working platform will be constructed to an elevation approximately 6 feet bgs. The constructed elevation may vary to maintain a stable working platform above the groundwater table. The purpose of the ISS construction platform is to:

- Provide a level working platform for the ISS equipment
- Provide area to manage ISS swell material
- Provide surface water run-off control from the removal action areas

4.4.2 Management and Disposal of Excavated Materials

During the pre-excavation and excavation activities, materials will be visually inspected for MGP residuals and segregated into the following categories:

- Non-MGP impacted construction debris
- MGP impacted construction debris
- MGP impacted soil/source material
- MGP impacted soil/source material at or above Subtitle D landfill permit levels

Segregation and management of excavated materials will include the following activities:

- Non-impacted construction debris will be temporarily stockpiled on site in a designated clean stockpile area prior to loading and transport to a recycling facility or disposal facility as construction debris.
- MGP impacted construction debris will be loaded and transported in covered trucks to the landfill for disposal. MGP impacted construction debris that is not directly loaded for immediate disposal will be temporarily stockpiled within the removal action area limits or within the appropriate material management area. MGP impacted construction debris that is too large for transport will be mechanically demolished to the proper size prior to transport. Fugitive emission controls will be employed for stockpiles that remain after work hours.
- MGP impacted soil/source material may be placed within the removal action areas for ISS treatment or transported in covered trucks for landfill disposal. Soil that is not directly loaded for immediate disposal or placed for ISS treatment will be temporarily stockpiled within the removal action area limits. Fugitive emission controls will be employed to stockpiles as necessary.
- MGP impacted soil/source material that exceeds Subtitle D landfill permit limits will remain on site and managed with ISS. Based on existing analytical data, potential MGP source material above the Subtitle D landfill acceptance criteria could be encountered in isolated sections of the removal areas. These locations will be identified based on existing analytical data and materials within these areas will remain on site for management with ISS.

4.4.3 Onsite Materials Management

To facilitate proper on-site segregation and staging of materials during the removal action, it is anticipated that the following staging areas will be established on-site:

- Material Management Area: MGP source material and MGP impacted debris that requires stockpiling prior to transport for disposal may be stockpiled within this area. The area will be constructed with a low permeability working surface (e.g., asphalt pavement or polyethylene lined pad), a sump, and berms.
- Decontamination Area: This area will be used to decontaminate construction equipment. The area will be constructed with a low permeability working surface, a sump, and berms. Liquids generated during decontamination activities will be managed similarly to the excavation dewatering treatment discussed in Section 4.4.4.
- Clean Staging Area: Clean, imported fill materials will be stockpiled in this area. The clean staging area will consist of silt fence or berms around the perimeter to minimize potential storm water run-off.
- Water Treatment Pad: A mobile pre-treatment system will be staged here. Water collected from excavation dewatering will be treated prior to discharge to the sanitary sewer system, as described in Section 4.4.4.

4.4.4 Excavation Dewatering

If required, excavations and removal action areas will be dewatered to facilitate removal activities. Dewatering will be performed via a trench along the bottom of the excavation or via down-hole sumps equipped with pumps of adequate capacity. Water will be pumped to frac tanks for solids settling. The water will be pumped through a mobile pretreatment system and then discharged to the sewer (as approved by Metropolitan Water Reclamation District of Greater Chicago [MWRD]). A pre-treatment system will likely consist of an oil-water separator, bag filters and granular activated carbon units.

Residuals resulting from the groundwater pretreatment system may include:

- Granular Activated Carbon
- Bag or cartridge filters
- Solids from frac tanks

Bag or cartridge filters and solids will be transported for landfill disposal. Granular activated carbon may either be regenerated at a dedicated facility or transported for landfill disposal.

4.4.5 ISS Construction

Following completion of pre-excavation and shallow excavation, ISS will be performed to solidify/ stabilize MGP source material within the removal action areas. Figure 6 presents the layout of the areas and depths of ISS treatment. ISS construction will be completed as described below.

4.4.5.1 ISS Layout and Design

The layout of the ISS treatment area has been overlayed on a 40' x 40' grid system. The treatment depths for this TCRA are relatively shallow. This will allow for the contractor to employ bucket mixing on the site. Bucket mixing has the advantage of not needing to overlap, as required by large diameter auger (LDA).

Each mixing cell will include continuous application from the ISS platform surface to the preliminary depths designated on Figure 6. Each mixing cell will have a unique lateral location (denoted by either grid cell name or northing, easting) and top and bottom treatment elevations. Each mixing cell will be survey-located prior to construction. ISS treatment will be completed in removal action areas to a depth of at least 6 inches below the lowest observed MGP source material.

4.4.5.2 ISS Operations

Final ISS equipment requirements will be evaluated and confirmed following selection of the ISS contractor. Typically, the following equipment will be required to complete ISS construction:

- Earth Moving Equipment: Conventional earth moving equipment including bulldozers and hydraulic excavators will be used during ISS construction to manage materials including soil and ISS swell. Ancillary equipment needed for daily operations and construction will include front-end loaders, forklifts, man lifts, vibratory compaction equipment, and quad-axle or semi dump trucks.
- ISS Batch Plant: ISS grout will be prepared using an on-site batch plant. Grout plants operate by mixing known quantities of reagents and water to form an ISS grout of predetermined proportions in accordance with the mix designs specified from the ISS treatability study. Grout is then pumped from the mixing plant to the point of use. Typically, the grout plant will consist of, at a minimum: a storage silo, mixing tank, storage tank, and grout pump (e.g., Moyno™ progressive cavity pump). A secondary bulk dry reagent storage vessel, sometimes called a "pig" is typically added to the system as additional on-site storage for reagent, which prevents delivery trucks from having to supply reagents directly to the overhead silo. The storage vessel can hold approximately

six truckloads of reagents as opposed to the storage silo that can hold approximately one truckload. This setup will aid in scheduling reagent deliveries and minimize operational downtime.

- Excavator Bucket Mixing: For shallower treatment depths, excavator bucket mixing methods may prove more productive than LDA rig methods. In lieu of ISS mixing columns, designs entail mixing cells as appropriate for excavator bucket mixing. Contractors often use excavators fitted with skeleton buckets to promote better mixing to implement ISS designs that do not require deep mixing.

Bucket mixing operations consist of excavating the treatment cell to the required depth. Once the bottom is reached the operator records the elevation of the four corners of the cell as well as locations of spots in the middle of the treatment depth. A grout batch determined by the dimensions of the cell is pumped into the excavation from the group plant via hoses. The stockpiled soil that was just removed is added to the cell incrementally and mixed with the grout from the base to the top of the treatment cell until the material appears adequately homogenized. Typical excavator bucket ISS mixing uses a standard skeleton bucket for mixing.

4.4.5.3 ISS Swell Management

Full-scale ISS construction will result in expansion of the treated soil. The expansion, often referred to as "swell", is a result of blending reagent mixtures with the soil. Based on the procedure outlined in *US Army Corp of Engineers, 1995*, swell was calculated for certain mixes that were tested in the treatability study. Appendix G shows results of the calculations. The bulking factor is expected to be approximately 0.33 based on the mix design selected in section 3.5.3. Because the final design calls for four feet of clean stone over the top of the monolith, swell material will be managed across the site. The pre-excavations will be designed to minimize the volume of swell loaded out to the landfill.

4.4.6 Equipment Decontamination

All equipment will be decontaminated within the designated decontamination area. Final equipment decontamination, prior to demobilization, will consist of dry mechanical removal of any loose material followed by pressure washing.

Road trucks will not be allowed within the removal action limits to prevent off-site tracking of excavated materials. A tracking pad will be located at the truck entrances and exits as an additional measure to prevent off-site tracking of excavated materials.

Excavation or ISS equipment visibly containing MGP-impacted materials will be decontaminated prior to being moved from one location to another, as necessary to control cross-contamination between removal areas and areas not being removed.

Additional equipment decontamination procedures are described in the *Multi-Site Health and Safety Plan* (Integrys 2007).

4.5 Site Restoration

Imported clean fill will be used as backfill. Backfill material will be imported from a clean borrow source and may include stone, coarse aggregate, or fined-grained material depending on local availability and future site use. Backfill will be tested to confirm that it meets TACO Tier 1 Residential soil remediation objectives. Samples will be collected every 3,000 to 5,000 cubic yards of offsite backfill imported to the site.

Final design calls for at least 4 feet of clean aggregate over the monolith surface. The 4 feet of cover will protect the monolith surface from damage from expected future trucking activities which may cause cracking or fissures to form on the monolith surface. To the extent practical, the final ground surface will be restored to match preconstruction conditions. Final ground surface in selected areas will consist of coarse aggregate.

All erosion controls used during construction activities will be removed at the completion of the removal action. Post-construction erosion controls will be installed along the downgradient edge of the disturbed areas and as needed until vegetation is established.

5.0 STATE AND LOCAL REQUIREMENTS

5.1 Storm Water Discharge

The proposed removal action is expected to disturb an area exceeding one acre; therefore, the proposed construction activity is subject to NPDES requirements under the jurisdiction of the Illinois Environmental Protection Agency (IEPA) Division of Water Pollution Control. The substantive requirements of the following storm water related permitting will be completed to ensure consistency with the IEPA's construction site storm water program:

- A Notice of Intent for General Permit to discharge storm water associated with construction site activities (IEPA Form IL 532 2104) will be prepared and submitted to IEPA. The notice will include the following elements: identify PGL as the site owner, provide contact information for the Contractor, provide construction site information and description of the proposed work, and identify the receiving water body for storm water run-off.
- A SWPPP will be developed and submitted to IEPA. The SWPPP will include the following elements: provide a detailed site description, outline planned erosion and sediment controls, and planned storm water management controls. The SWPPP will be in place prior to the start of construction activity and will be maintained on site throughout the removal action.
- A Notice of Termination will be prepared and submitted to IEPA once site conditions are fully stabilized following the completion of construction activities.

5.2 Wetlands

There are no wetlands associated with Parcels G & V (USFWS 2020).

5.3 Additional Coordination and Permitting

Coordination with governmental agencies and utility providers will be required for the following project elements:

Table 2: Government Agency Coordination

Item	Governmental Agency/Utility
Authorization to discharge possible MGP impacted groundwater or surface water as part of the removal activities to the local sewer system. Special Discharge Authorization	MWRD and City of Chicago Department of Water Management
Storm Water Discharge Authorization.	IEPA Division of Water Pollution Control
Office of Underground Coordination Existing Facility Protection and Deep Foundations Review	City of Chicago Department of Transportation

Additional approvals will be secured by the affected contractors, as needed during construction.

5.4 Off-Site Disposal

Excavated MGP-impacted debris and soil will be disposed at Laraway Landfill, located in Joliet, Illinois, a Subtitle D landfill.

5.5 Beneficial Use of Ground Granulated Blast Furnace Slag

Use of GGBFS as one of the reagents used in an ISS mix will be in accordance with Illinois regulations (Title 35, Subtitle G: Waste Disposal, Chapter I: Pollution Control Board, Subchapter i: Solid Waste and Special Waste Hauling, Part 817, Subparts A and B). Specifically, beneficial use of GGBFS will be in accordance with Part 817, Subpart B, Sections 817.201 through 817.204; the generator of the GGBFS will certify that the waste sent to an offsite beneficial use meets the Subpart A requirements for beneficial waste prior to use. Should the certification of this material not be approved, alternate mixtures excluding the use of GGBFS will be utilized instead.

6.0 CONSTRUCTION QUALITY ASSURANCE MEASURES

This section describes the following CQA measures that will be employed during the removal action.

- Air monitoring
- Fugitive emissions management
- Health and safety
- Sampling and analysis
- Construction testing

6.1 Air Monitoring and Fugitive Emissions Management Plan

Removal action activities have the potential to generate emissions, including odor, fugitive respirable particulate matter less than 10 micrometers in diameter, and vapor phase contaminants of concern. The Air Monitoring and Fugitive Emissions Management Plan establishes the procedures for real-time perimeter air monitoring, time weighted average perimeter air monitoring, real time handheld and observational monitoring, assessment of meteorological conditions, and management of fugitive emissions. See Appendix H for the Air Monitoring and Fugitive Emissions Management Plan.

6.2 Health and Safety Plan

See RAWP Rev. 1, Section 6.3, page 37 for information regarding the Site-Specific Health and Safety Plan (SSHASP) for ongoing removal activities at the Site. The SSHASP will be updated as appropriate to reflect the location of Parcel G & V and other site-specific characteristics. A copy of the updated SSHASP will be provided to USEPA upon request.

6.3 Sampling and Analysis Plan

See RAWP Rev. 1, Section 6.4, page 38 for information regarding the sampling and analysis plan for the Parcel G & V removal action. The CQA Plan in Appendix I provides information regarding ISS performance sampling. All other sampling is discuss in the various subsections.

6.3.1 Pre-Confirmation Sampling

Pre-confirmation samples will be collected around the perimeter of the proposed treatability area to confirm the extents of the source material impacts have been captured. Borings will be completed to 25 feet bgs with a DPT equipment. Field screening for source material via visual observation will be conducted. Samples will be collected from the most impacted interval, or if no impacts are apparent, from the interface between the fill and the clay. Samples will be analyzed for TPH and selected COPC analyses. Lateral extents may be adjusted based on results of the pre-confirmation sampling.

6.3.2 Pre-Disposal Sampling

Samples of soil and soil mixed with selected additives will be sent to the lab for waste characterization analysis for development of a waste profile. One waste profile will be used for all pre-excavation, shallow excavation, and swell disposal. If soils are above landfill requirements and require amendment, the soils will either be managed onsite with ISS or samples will be collected following amendment to document that landfill requirements are met. These samples will be submitted to a laboratory for Toxicity Characteristic Leaching Procedure (TCLP) of total benzene analysis.

6.3.3 ISS Performance Specifications

Samples to compare the ISS monolith sample performance against the specifications will be collected according to the CQA Plan in Appendix I. Samples will be collected following mixing of a prescribed volume of treated soil. Samples will be collected by an in-situ sampler to allow for samples to be collected at a variety of treatment depths.

6.3.4 MGP-Residuals Contact Water

If MGP-residuals contact water is generated, samples will be collected in accordance with MWRD requirements prior to discharge to the sanitary sewer. Samples will be analyzed for the parameters specified by MWRD to confirm concentrations are below the discharge limits required by the permit.

6.4 Construction Quality Assurance Plan

See Appendix I for the CQA Plan.

7.0 SCHEDULE

7.1 Schedule for Construction

Construction activities are tentatively scheduled to begin in late August 2021 subject to review and approval of this RAWP Addendum 2.1 by the USEPA and permitting approvals. Property access and contractor availability are not expected to be constraints with respect to the project schedule; however, weather conditions and availability of raw materials may influence the production rate of the work. Site preparation activities are anticipated prior to approval of this RAWP Add. 2.1. The tentative schedule is as follows:

- August 2021 – Addendum 2.1 submitted
- August – September 2021 – Mobilization and site setup
- September 2021 – Receive USEPA approval
- September – November 2021 – Excavation
- November 2021 – April 2022 – ISS
- April – May 2022 – Backfill
- May 2022 – Demobilization

7.2 Completion Report

Remediation data will be collected and filed for a future Removal Action Completion Report to be submitted to USEPA following restoration of Parcels G & V but potentially in conjunction with other completed or future Site parcels.

8.0 REFERENCES

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USEPA 2019. *Administrative Settlement Agreement and Order on Consent for Removal Action.* Docket No. V-W-11-C-981. Fifth Modification of Settlement Agreement. February 21, 2019.

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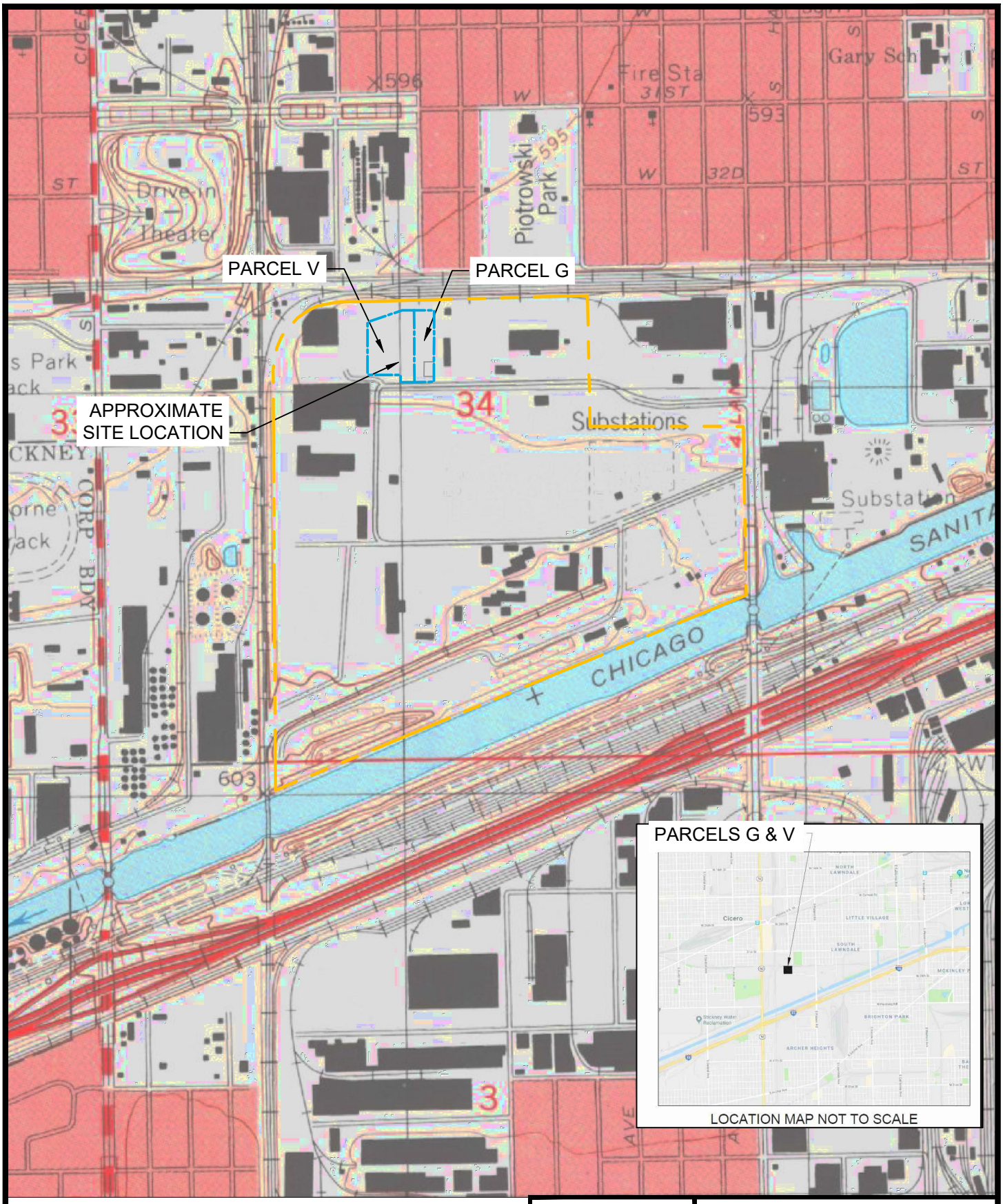


BURNS McDONNELL

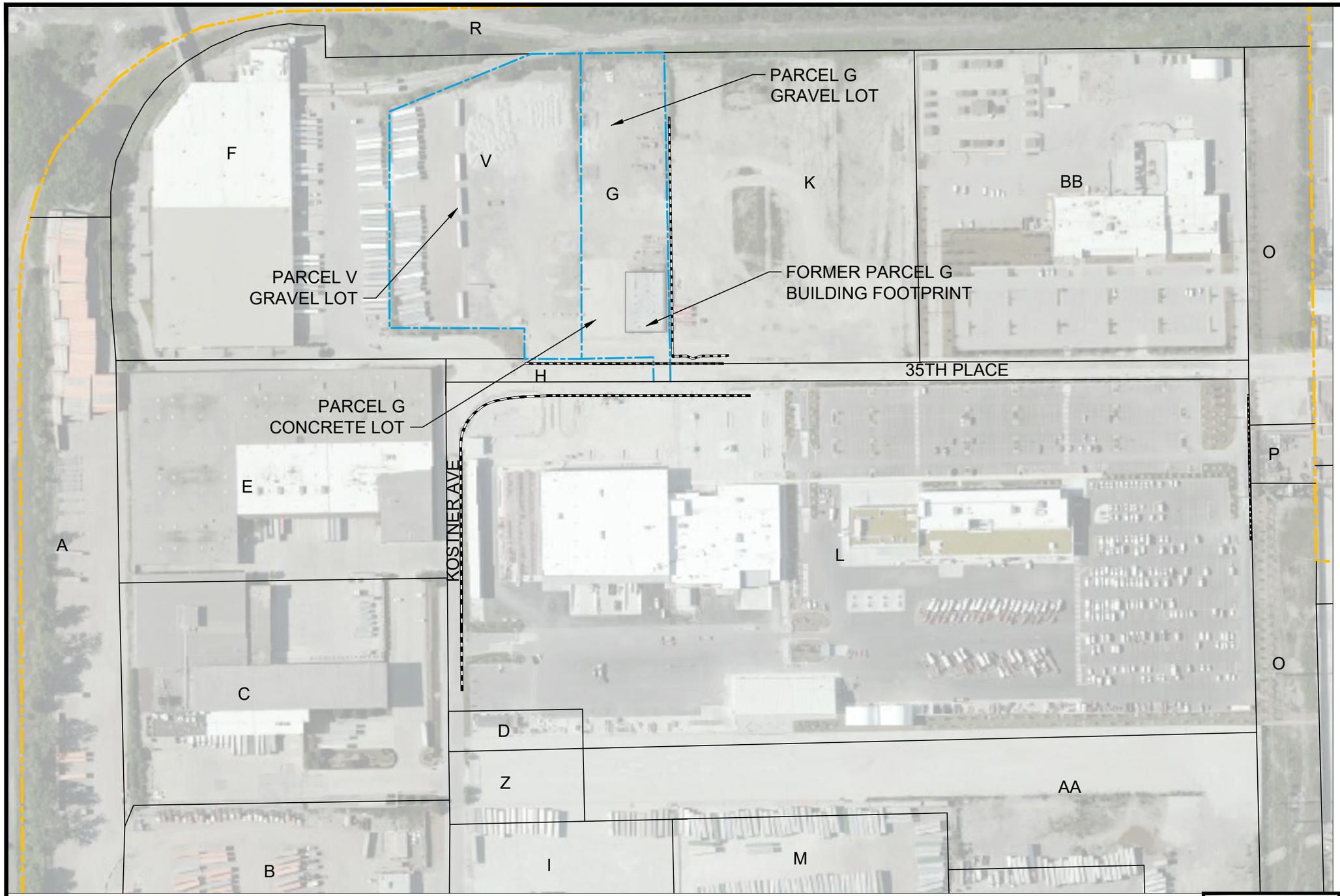
Figure 1 - Site Location Map

Removal Action Work Plan - Addendum 2.1

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

Project No. : 128619



NOTE :

PARCEL G BUILDING HAS BEEN RAZED.

LEGEND :

CRAWFORD MGP UPLAND SITE BOUNDARY

APPROXIMATE PARCEL G & V BOUNDARY

SHEETPILE LOCATION

NORTH

0 200' 400'

SCALE IN FEET

BURNS McDONNELL

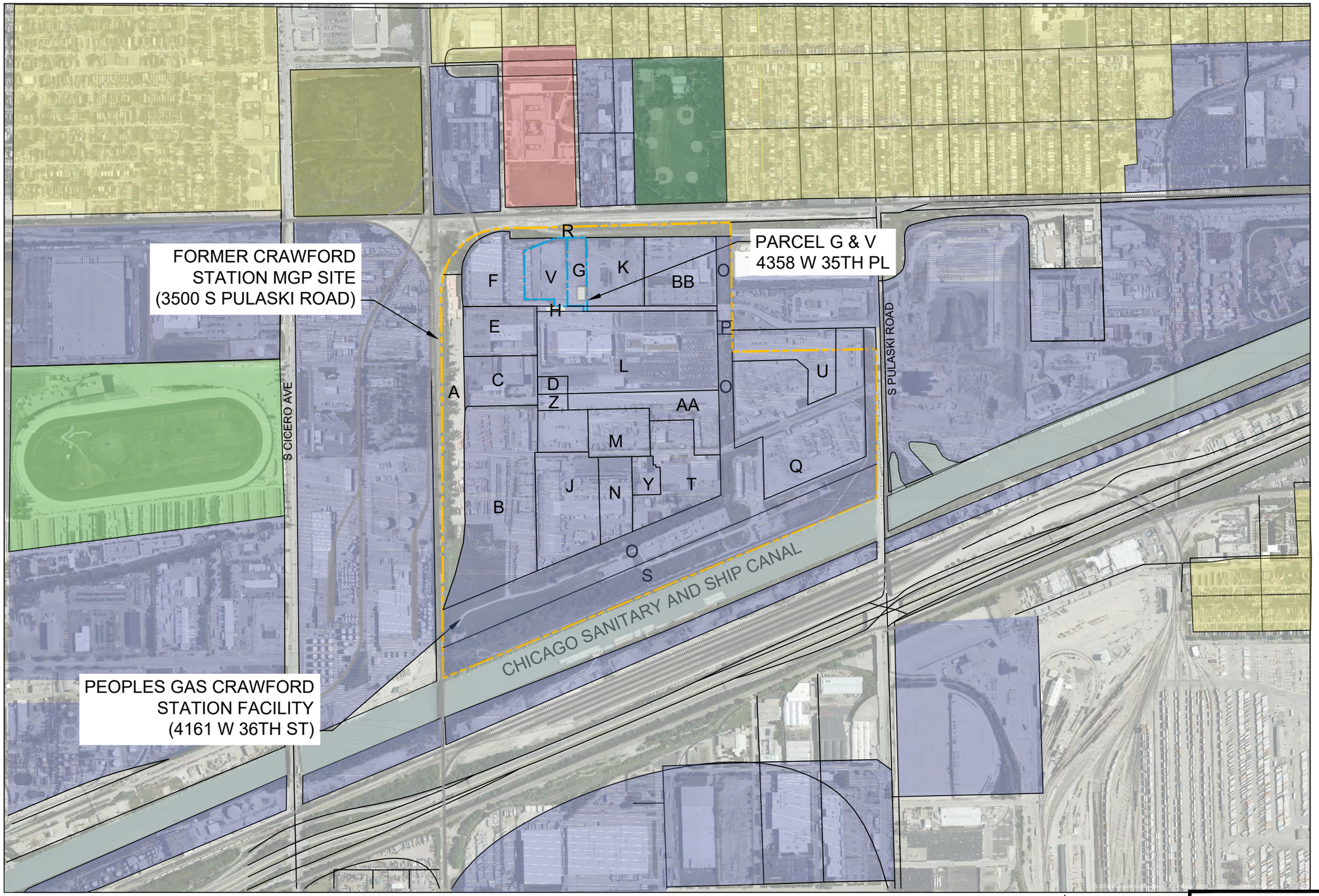
Figure 2 - Site Layout

Removal Action Work Plan - Addendum 2.1

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

Project No. : 128619



LEGEND :

- CRAWFORD MGP UPLAND SITE BOUNDARY
- PARCEL G & V BOUNDARY
- APPROXIMATE PARCEL BOUNDARY
- RAILROAD TRACKS
- WATER
- PARK AND OPEN SPACE
- INDUSTRIAL
- RESIDENTIAL
- HAWTHORNE RACE TRACK
- LITTLE VILLAGE HIGH SCHOOL
- VACANT

NORTH

0 900' 1800'

SCALE IN FEET

BURNS McDONNELL

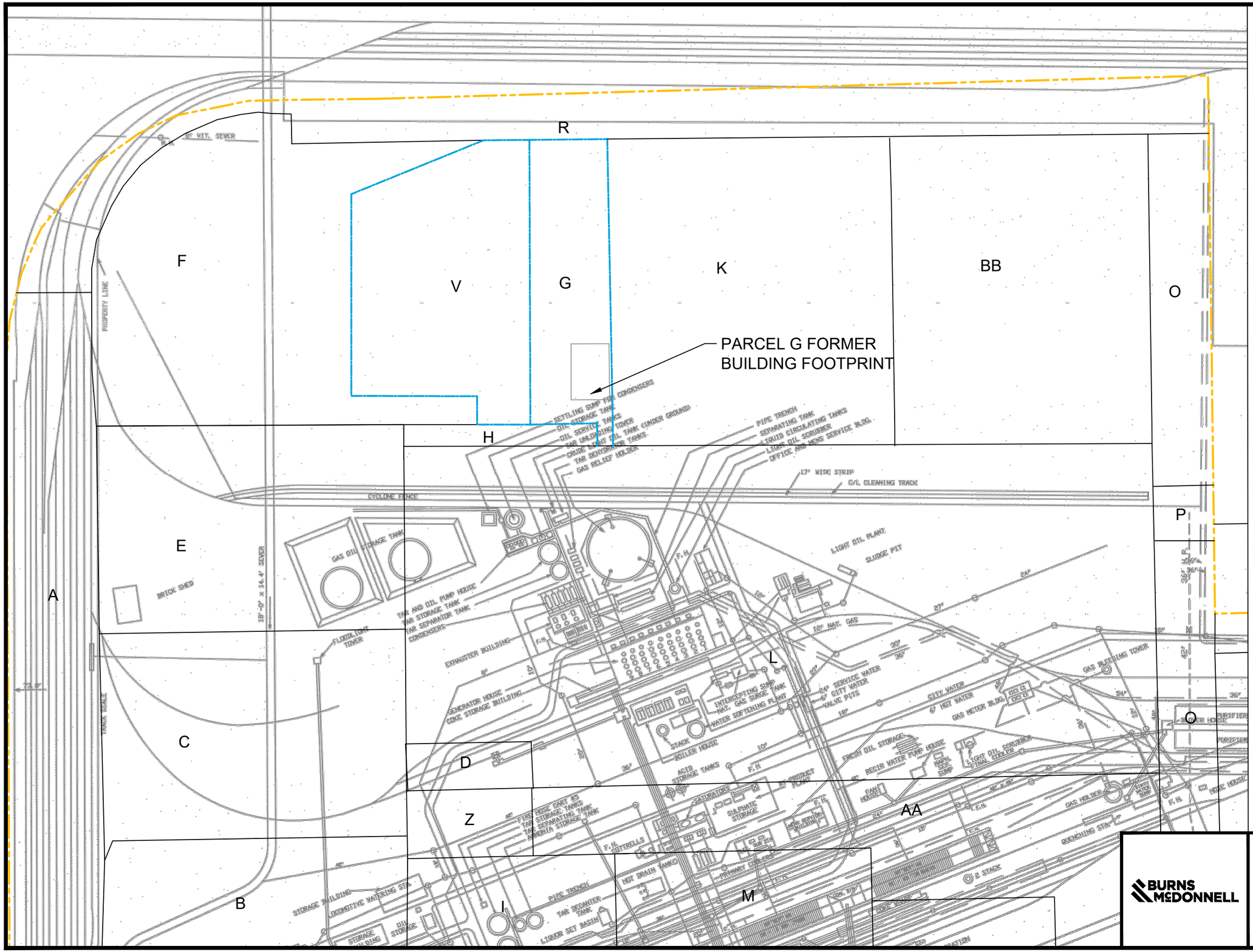
Figure 3 - Surrounding Land Use

Removal Action Work Plan - Addendum 2.1

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

Project No. : 128619



BURNS McDONNELL

Figure 4 - Historical Site Layout

Removal Action Work Plan - Addendum 2.1

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

Project No. : 128619

NOTE : PARCEL G BUILDING HAS BEEN RAZED.

LEGEND :

- CRAWFORD MGP UPLAND SITE BOUNDARY
- SOIL BORING, SOIL VAPOR, OR MONITORING WELL LOCATION (REMEDIAL INVESTIGATION)
- TEST PIT LOCATION (REMEDIAL INVESTIGATION)
- APPROXIMATE PARCEL BOUNDARY
- PARCEL G & V BOUNDARY
- SHEETPILE LOCATION
- RAILROAD TRACKS
- OHE — OVER HEAD ELECTRIFICATION
- SAN — SANITARY LINE
- STORM — STORM LINE
- UGC — UNDERGROUND COMMUNICATION LINE
- TEST PIT LOCATION (PRE-DESIGN INVESTIGATION)
- SOIL BORING LOCATION (PRE-DESIGN INVESTIGATION)

ABBREVIATIONS :

GSB - PARCEL G SOIL BORING

MWG - PARCEL G PIEZOMETER

GSV - PARCEL G SOIL VAPOR POINT

VSB - PARCEL V SOIL BORING

MWV - PARCEL V MONITORING WELL

PV - PARCEL V PIEZOMETER

NORTH

0 100' 200'

SCALE IN FEET

BURNS McDONNELL

Figure 5 - Remedial Investigation and Pre-Design Investigation Sample Map

Removal Action Work Plan - Addendum 2.1

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

Project No. : 128619

NOTE : PARCEL G BUILDING HAS BEEN RAZED.

LEGEND :

- SOIL BORING, SOIL VAPOR, OR MONITORING WELL LOCATION
- TEST PIT EXCAVATION
- APPROXIMATE PARCEL BOUNDARY
- PARCEL G & V BOUNDARY
- 21 FEET BGS
- 16 FEET BGS
- 12 FEET BGS
- 7 FEET BGS
- SHEETPILE LOCATION
- SAN — SANITARY LINE
- STORM — STORM LINE
- UGC — UNDERGROUND COMMUNICATION LINE
- GAS — GAS LINE

Depth (ft): X
Area (sq. ft.) / Volume (cu. yd.)

NORTH

0 70' 140'

SCALE IN FEET

BURNS McDONNELL

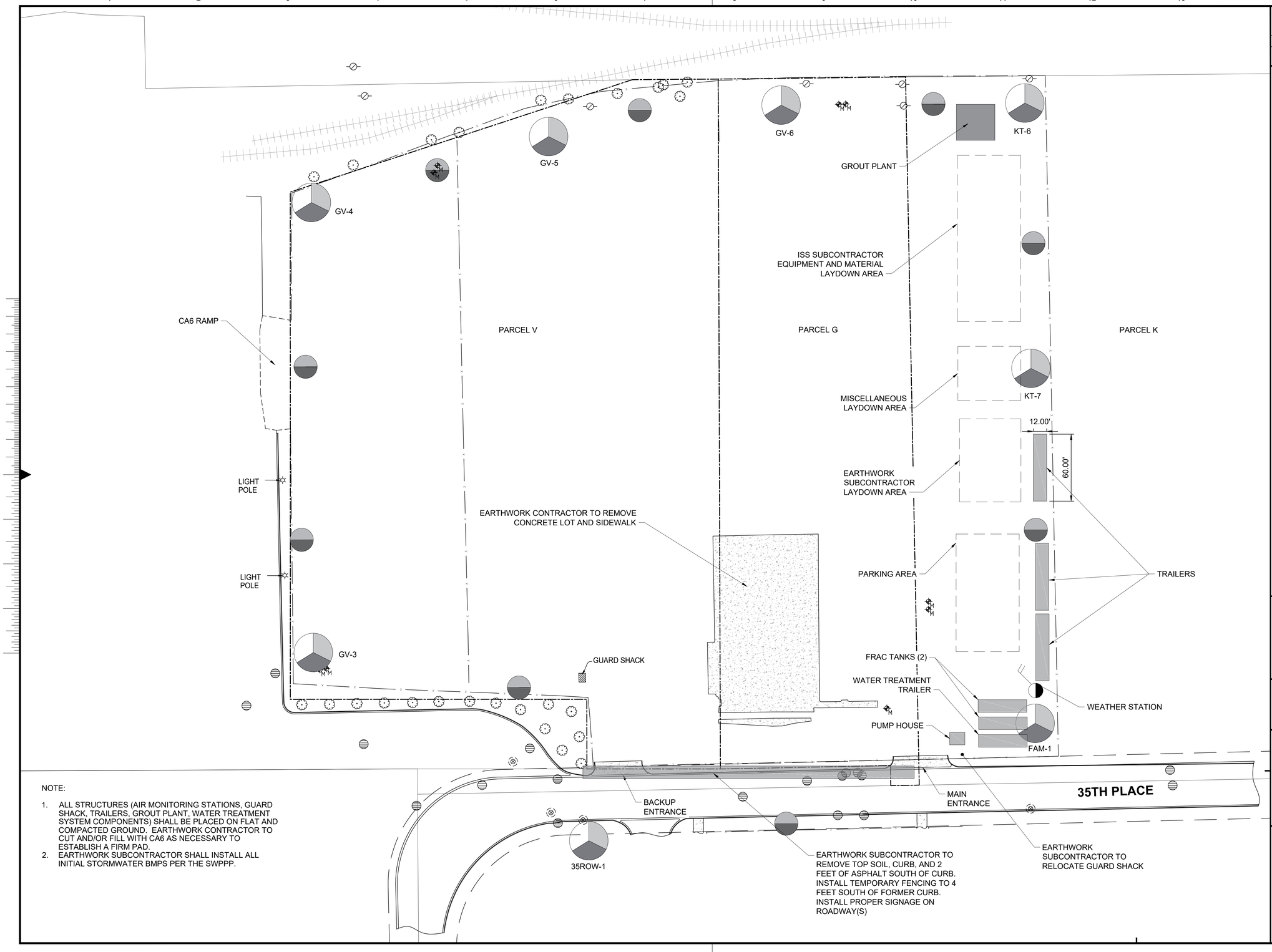
Figure 6 - Time Critical Removal Action
Area to be Addressed

Removal Action Work Plan - Addendum 2.1

Crawford Station Former MGP Site - Parcels G & V

4358 West 35th Place, Chicago, Illinois

Project No. : 128619



NOTE:

1. ALL STRUCTURES (AIR MONITORING STATIONS, GUARD SHACK, TRAILERS, GROUT PLANT, WATER TREATMENT SYSTEM COMPONENTS) SHALL BE PLACED ON FLAT AND COMPACTED GROUND. EARTHWORK CONTRACTOR TO CUT AND/OR FILL WITH CA6 AS NECESSARY TO ESTABLISH A FIRM PAD.
2. EARTHWORK SUBCONTRACTOR SHALL INSTALL ALL INITIAL STORMWATER BMPS PER THE SWPPP.

no.	date	by	ckd	description

LEGEND :

- APPROXIMATE PARCEL BOUNDARY
- PARCEL G & V BOUNDARY
- RAILROAD TRACKS
- UTILITY POLE
- MONITORING WELL
- LIGHT POLE
- MANHOLE
- EXISTING FENCE
- CONCRETE PAD
- DECIDUOUS
- VALVE VAULT
- HANDHELD AIR MONITORING POINTS
- AIR MONITORING STATION

NORTH

0 20' 40' 80'
SCALE IN FEET

BURNS McDONNELL

date	detailed
	S. PASHUPATIHAL
designed	checked
M. FANIZZA	E. MEYER

PEOPLES GAS
NATURAL GAS DELIVERY

Figure 7 - Site Preparation Plan
Removal Action Work Plan - Addendum 2.1
Crawford Station Former MGP Site - Parcels G & V
4358 West 35th Place, Chicago, Illinois
Project No. : 128619

project | contract

drawing | rev. –

sheet 7 of 7 sheets

file C:\Users\SPashupatiIhal\OneDrive - Burns & McDonnell\Desktop\Eagar\RAWP\Draft 199\MXD\Figure 7- Site Preparation Plan

Scale For Microfilming
Millimeters
Inches

ATTACHMENT 3

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR THE
PEOPLES GAS CRAWFORD STATION FORMER MGP SITE
CHICAGO, COOK COUNTY, ILLINOIS

UPDATE 5
November 2021
SEMS ID: XXXXXX

NO.	SEMS ID	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	2003800	11/2/2021	Kenny, P., Peoples Gas	Bumba, L., U.S. EPA	Removal Action Work Plan Addendum 2.1 Revision 1 – Parcels G and V (**WITHOUT APPENDICES**)	51
2			Murray, B., and Bumba, L., U.S. EPA	Ballotti, D., U.S. EPA	Enforcement Action Memorandum re: Request for Approval for Change in Scope at the Peoples Gas Crawford Station Former MGP Site (**PENDING**)	